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ABSTRACT

The Bibliographic Automation of Large Library Operations Using a Time-sharing System (BALLOTS) is a computer-based interactive system which supports the acquisition, cataloging, and bibliographic searching processes in the Stanford University Libraries. This document provides extensive descriptions of: (1) the BALLOTS system, (2) its files and indexes, (3) formats and procedures for its use, (4) search procedures, and (5) computer commands used to manipulate the system. (EMH)

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A GUIDE TO
BALLOTS NETWORK SERVICES

BALLOTS Center

April 1976

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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April 1976
BALLOTS Center
Stanford Center for Information Processing
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Stanford, CA 94305

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A GUIDE TO BALLOTS NETWORK SERVICES

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I. Introduction
II. System Overview
III. Getting Started

I. INTRODUCTION

This guide describes the bibliographic network services available through BALLOTS ("Bibliographic Automation of Large Library Operations using a Time-sharing System"). BALLOTS operates in two basic modes: full-face transmission, supporting acquisitions and cataloging on video terminals at communication speeds of 120 to 480 characters per second (cps); and line-by-line transmission, supporting the network searching and cataloging on video or typewriter terminals at communication speeds of 10 to 30 cps (and 120 cps by special arrangement).

The full-face BALLOTS system has been in continuous operation at Stanford University since November 1972. Using programmable video terminals (Sanders 804 upper-lower case) running at 480 cps in the Main Library and Meyer Undergraduate Library, BALLOTS provides comprehensive on-line technical processing services for the Stanford University Libraries.

For the Acquisition Department, the full-face system supports the ordering, claiming, canceling, receiving, and in-process control of monograph materials arriving on regular or standing orders; the receiving and in-process control of materials received on approval or blanket plans, by exchange, or gifts; the ordering, claiming, and canceling of serials; and the procurement control of out-of-print materials. Claiming for serials includes automatic follow-up until the first piece of a new subscription is received; claiming for all other materials (including standing orders for terminal sets) includes automatic follow-up of orders on a regular schedule until the entire order is filled or canceled.

For the Catalog Department, the full-face system supports the in-process control, cataloging, and records maintenance of all materials (monographs, serials, terminal sets, microtexts, etc.) cataloged in the roman alphabet, including transliterated Cyrillic. The system also enables one to establish automatic, repeated ("standing") searches against the BALLOTS MARC file, which is added to weekly.

As one result of each day's on-line activity in the library, the following morning the library receives all the printed documents required in processing, including purchase orders, catalog cards, claim notices, cancellation notices, etc. Se-Lin spine labels are printed at a computer typewriter terminal in the library.

Several on-line files are maintained and added to by the BALLOTS system. In addition to the Library of Congress MARC (Machine-Readable Cataloging) file, there is a complete Stanford in-process file, a Stanford catalog holdings file, the complete catalog of Stanford's J. Henry Meyer Memorial Undergraduate Library, and a cross-reference file to records in the Meyer and Stanford on-line catalog files.

The full-face BALLOTS system is not presently publicly available. Development is scheduled to make full-face cataloging available first, followed by full-face acquisitions support.

For a detailed discussion of the full-face BALLOTS system, see the Journal of Library Automation, March 1975, pages 31-50.

The line-by-line BALLOTS system was put into production in June 1975 and is publicly available. (The BALLOTS files were first made publicly available for searching through SPIRES--the Stanford Public Information Retrieval System. The line-by-line BALLOTS system explained in this document supersedes the use of SPIRES for BALLOTS searching.) Using the TYMNET communications system or direct long-distance telephone lines and most typewriter, CRT, or CRT-printer terminals, libraries and individuals throughout the country may use the system's bibliographic network services. The system is also available in Toronto, Canada, and several European cities.

These services are presently available in three "functions":

INQUIRY -- using this function, the user can search all the BALLOTS on-line files, using the BALLOTS indexes and interactive searching capabilities. Records found may be displayed in several formats.

SEARCH -- using this function, the user has the full file searching capabilities of the INQUIRY function but in addition is able to establish standing search requests. These are automatically repeated at monthly intervals against the MARC file for a period of time specified by the user. If the search request is successfully matched with an incoming MARC record, the user receives a printed notification of the record found. If after the time specified a match has not been found, the user is notified and the request is purged.

NETWORK -- using this function, the user has the full capabilities of the SEARCH function, plus the ability to modify a record found in the data base in order to reflect local cataloging requirements and to create new records on-line. Cataloging records thus produced are transmitted to the user in the MARC format on magnetic tape, for interface with commercial or in-house cataloging systems.

These three functions were first implemented for use by the Public Library Automation Network, or "PLAN". This group of seven libraries--Los Angeles County Public Library, Los Angeles Public Library, Marin County Library, Orange County Public Library, San Francisco Public Library, Santa Clara County Free Library, and Sutter County Free Library--was selected by the California State Library to form a pilot network using BALLOTS services extended beyond Stanford through work done under a State Library LSCA Title III contract. Five PLAN libraries (Santa Clara County, Los Angeles Public, Los Angeles County, Orange County, and Marin County) currently have computer-based catalog support systems. For these libraries, records cataloged through the network are output in machine-readable form on magnetic tape, as input to their current computer systems or to the commercial vendors who produce their book or microfiche catalogs.

In addition to generally informing the library community of BALLOTS services, this guide has the specific purpose of helping libraries to use the BALLOTS searching and cataloging services. Appendix A provides guidelines to use of the TYMNET system to get to BALLOTS. Appendix B discusses the Zentec 9002B terminal being used by the Public Library Automation Network ("PLAN") libraries. Appendix C lists the TYMNET nodes and telephone numbers throughout the United States. Appendix D is a map of Stanford University campus, with the location of the BALLOTS offices and the 370/168 computer highlighted. Appendix E contains guidelines for selecting a terminal for use with the BALLOTS system. Appendix F is a list of other BALLOTS publications available, with brief descriptions of each item.

II. SYSTEM OVERVIEW

The sections that follow describe all the aspects of the BALLOTS network system that the user may need to review in using the system. Any description of BALLOTS involves a number of special terms and concepts. These are not always redefined in each section of the Guide. The purpose of this section is to try to provide an overall description of using the system and a first mention and definition of these terms and concepts.

The system is based on the use of a number of computerized files. One of these, the BALLOTS MARC File, contains bibliographic records for monographs in English and several other languages. The records are from the MARC (MAchine-Readable Cataloging) tapes produced by the Library of Congress. The BALLOTS Center receives a tape once a week and adds the records on it to the BALLOTS MARC File (or "MRC File") after converting them to the BALLOTS record format. The system user searches the MRC File to find cataloging data for a book.

Searching is done "interactively", that is, the user sits at a computer terminal typing in search requests to which the system returns answers at once; the user can modify his requests in light of the system responses he sees displayed on the terminal. To search, the users employs the BALLOTS "command language"--various command words that direct the system to take a specific action, like the word FIND. The system commands that can be used in searching are: BACKUP, DISPLAY, EXIT, FIND, format call commands, KEEP, LOGOFF, paging commands, RESUME, SET, SHOW, TO.

In addition to the MRC File, there are other files of records created by Stanford University Libraries that the user can also search for information. These are a Catalog Data File ("CDF") of bibliographic records for all the titles cataloged at Stanford through BALLOTS; an In Process File ("IPF") of acquisition information on titles being acquired by Stanford through BALLOTS; and a Reference File ("REF File") of references to entries in the Catalog Data File.

In order to search these files, the user employs index terms and specific values. For instance, the MRC File has four indexes: Personal Name, Corporate/Conference Name, Title Word, and Library of Congress Card Number. The user might type the search request "find pn woolf, l and t downhill" as an author-title search. "Pn" is a shortened "alias" for the Personal Name Index ("a", for author, is another). "T", "title", and "word" are the three search aliases for the Title Word Index. In this case, the system would return to the user a search result of all the records in the MRC File authored or edited by Leonard Woolf or any other L Woolfs with titles containing the word "downhill".

II. SYSTEM OVERVIEW cont.

Sections VII, "Files and Indexes", VIII, "Searching Procedures", and IX, "Commands", describe in greater detail the contents of each file and the indexes to each, the way to construct different kinds of search requests, and the commands that can be used. (Section IX also contains descriptions of commands that are used to create and modify records; see below.)

If the user searches for a title that can't be found yet in the MRC File, but which he thinks is likely to be included in MARC cataloging within the next several weeks or months, he can make this search request a "standing search request" by giving the command KEEP. This directs the system to add the search to the Standing Search Request File ("SSR File"), to be run against the MRC File automatically once a month. The user can give with his command a number up to 18 to indicate how many months he wishes the search retained in the file and re-run against the MRC File monthly. If the system matches the search request to a MRC File record, it prints out a notice to the user of this fact. Section XIV, "Printed Outputs", contains an illustration of this "matched SSR notice" and also of the "purged SSR notice". To delete a standing search request from the SSR File, the user gives the REMOVE SSR command with the number assigned to the search at the time it was added to the file. Section VIII describes all of this.

Section X, "Display Formats", describes the ways in which the system can display the contents of records retrieved through searching. A "format" is a logical presentation of the various units of information contained in a record. For instance, here is a sample Brief Data Display Format:

```
Spline functions and approximation theory.
  Basel, Stuttgart, Birkhaeuser, 1973.
CRD:73168561     ID:14699S
```

Designed simply for quick reference as the user scans the results of a search that may have retrieved several records, it shows him the main entry, the imprint, the Library of Congress card number ("CRD"), and the record identification number ("ID") assigned to the record by BALLOTS when the record was created, as either an In Process or Catalog Data File entry. The user can request any of three other display formats in order to see more information from the record, or in order to see it presented in a different perspective. The display formats are:

Brief Data Display Format (SHORT)
Partial Data Display Format (PARTIAL)
Long Data Display Format (LONG)
Full Data Display Format (FULL)

There is also a Full Reference Display Format (REF) that is used to display cross-references from the Reference File.

II. SYSTEM OVERVIEW cont.

Besides formats, there are also "frames." A frame is simply the portion of a record that can fit on one CRT (cathode ray tube) terminal screen. A typewriter ("hard copy") terminal has a continuous flow of paper and thus is not sensitive to record size when typing display or input formats. Since the size of CRT screens varies, the SET command can be used to specify the proper framing that should be done by the system in displaying records clearly for the user. The framing mechanism can also be useful if one is using special forms in a hard copy terminal and wants to control the width of the lines printed out.

The Full Data Display Format looks like this:

```
 1.    MET   00  Spline functions and approximation theory.
 2.    TSSB      Proceedings of the Symposium held at the
 3.              University of Alberta, Edmonton, May 29 to
 4.              June 1, 1972.
 5.    TSRT      Ed. by A. Meir and A. Sharma.
 6.    PP        Basel, Stuttgart, Birkhaeuser,
 7.    D         1973.
 8.    PG        386 p.
 9.    SZ        25 cm.
10.    REC       am
11.    CARD      73168561
12.    SN
13.    SNST      International series of numerical mathematics,
14.    SNSV      v. 21
15.    SNTI      Y
16.    SASU      Spline theory - Congresses.
17.    SASU      Approximation theory - Congresses.
18.    OAPN      Meir, A., ed.
19.    OAPN      Sharma, A., ed.
20.    DC        511/.42
21.    ISBN      376430670X
22.    L         eng
23.    CP        sz
24.    LC        QA224.S65
25.    MS        N
26.    LPR       64.00F
```

What the user sees here is the record's information explicitly displayed by "data element", or, more precisely, by the abbreviation for a data element, the mnemonic tag.

The information in all BALLOTS records is stored, indexed, and displayed in standardized units called data elements. The names of data elements indicate the information provided. Each data element name is abbreviated to a one- to four-character mnemonic tag, used on input formats and here on a display format.

II. SYSTEM OVERVIEW cont.

(For example, the mnemonic tag for "Place and Publisher" is PP.) Data elements should not be confused with their values. For instance, the value of the "Date of Publication" (mnemonic tag D) may be "1971" in one record and "c1970" in another record.

A "structure" is a group of data elements that have some logical connection. In certain instances, the system can (or must) process these elements as a group, rather than as individual data elements; in such cases, the structure name can be used to refer to the group as a whole. In the Full Data Display Format shown above, SN ("Series Note") is a structure. Structures are explained and enumerated in Section XIII, "Data Elements".

Data elements have two characteristics in addition to their mnemonic tags and values. These are "indicators" and "subfield delimiters". An indicator is a number that is input preceding the value. It tells something about the value of the data element. For example, the first indicator for MEPN ("Main Entry Personal Name") tells whether the name is a single surname, a multiple surname, a forename, etc. A data element may have two indicators or it may have no indicators. Delimiters set off internal portions of a data element's value. These portions are called "subfields". The delimiter is always two characters: a dollar sign followed by a lower case letter. For example, in PP ("Place and Publisher"), the publisher subfield is preceded by the delimiter "$b". When creating or updating a record, one need never input the first or only subfield delimiter of a data element.

In Section XIII, the data elements are described in more detail and the mnemonic tag and full name of each data element in the BALLOTS line-by-line system are given. Information about the indicators and subfield delimiters for each data element is contained in the BALLOTS Data Elements Notebook, a separate publication.

Four paragraphs above, "input formats" were mentioned. The system provides these arrangements of data in response to the user's commands to create a record or to modify a record found in searching. In the network system, created or modified records become part of magnetic tape output to the user's own computerized system; as yet, they are not retained in any on-line file like the CDF or IPF at Stanford. When the user alters a record in order to produce a catalog record for his institution's magnetic tape, he does not change the record stored in Stanford's

II. SYSTEM OVERVIEW cont.

files. Here is an example of the First Bibliographic Input Format:

```
 1.     MEPN        McPherson, Joseph H.
 2.     TST    10   Managing business social concerns :
 3.     TSSB        a research report /
 4      TSRT        by the Long Range Planning Service, Stanford Research
 5.                 Institute, [by Joseph H. McPherson, Robert W. Dawson].
 6.     PP          Menlo Park, Calif. : The Service,
 7.     D           1972-
 8.     PG          v.    :
 9.     ILL         ill. ;
10.     SZ          28 cm.
11.     REC         am
12.     DCF         i
13.     CP          cau
14.     L           eng
15.     CARD        75314358
16.     MS          N
17.     LC          HC101.S77 no. 480, etc.
18.     LCA         HD60.5.U5
19.     DC          330/.08 s@ 658.4/08
```

Here the system has displayed the information found in a record from the Catalog Data File.

Each input format is composed either of data element mnemonic tags followed by the existing value of the element present in the record (when one is cataloging an item from an existing record in the BALLOTS data base); of mnemonic tags followed by blank input fields, to be filled in by the user (when one is creating a record where none existed before, or when one is filling in data element fields left blank in an already existing record); or of completely empty input fields, into which the user enters the desired data element mnemonic tags, indicators, and values. The system commands that can be used to create or modify a record are: CANCEL, COLLECT, CREATE, DELETE, ENTER, EXAMINE, format call commands, INSERT, MODIFY, NUMBER, RECOVER, SET, SHOW.

Cataloging is performed on a variety of input formats, each format addressing itself to a portion of the description for the title being cataloged. For example, the main entry, title statement, pagination statement, and date are input on the TOP (First Bibliographic Input) format; the contents notes are input on the NOTES (Notes Input) format; and the assignment of a call number and related holdings data are input on the HOLDINGS

II. SYSTEM OVERVIEW cont.

(Holdings Input) format. One modifies existing records or creates new ones through a logical sequence of input formats and commands concluded by the command ENTER. The input formats used in the NETWORK function are:

Added Series Input Format (ADDED SERIES)
Third Bibliographic Input Format (BOTTOM)
Holdings Input Format (HOLDINGS)
Second Bibliographic Input Format (MIDDLE)
Notes Input Format (NOTES)
Series Input Format (SERIES)
Subjects Input Format (SUBJECTS)
First Bibliographic Input Format (TOP)
Tracings Input Format (TRACINGS)

Section XII, "Input Procedures", explains further how to use the cataloging features of the network system, through annotated sample terminal sessions.

As mentioned above, at present the records created by users are not retained in any permanent file. They are stored, however, prior to overnight processing for magnetic output tape production, in a daily queue of input transactions called the Print Data Queue ("PDQ"). The Print Data Queue is described in Section VII, "Files and Indexes", since it can be considered a kind of file with limited searching possibilities. If the user wishes to see again or to modify further a record that he has put into the Print Data Queue THAT DAY, he may issue the command RECOVER with the PDQ number assigned to the record and thus retrieve it.

* * *

Now consider a typical session at the terminal in order to see how a library might use the BALLOTS cataloging service. Details of the actions described below are given in the referenced sections.

With book in hand, a catalog staff member goes to the terminal and searches the MRC File and the Stanford technical processing files. If an LC card number is available in the book, using this in the search request will produce the quickest and most economical response. If there is no LC card number, the staff member can formulate a search using an author's name (personal or corporate), a few distinctive words from the title, or a combination of both author name and title words. For example, "find pn brock, r and t cell biology" is a valid author-title search.

II. SYSTEM OVERVIEW cont.

BALLOTS will automatically search all files in the sequence specified in Section VI, "The Functions"; or the user may specify a different set or sequence of files than the default arrangement.* BALLOTS stops in the first file in which any records are found that match the search request criteria. If a single record is found, it is automatically displayed; if several records are found, the number found is displayed. The user may then ask to see each of these records in turn, or else further modify the search request to change the results, or request the search to be made against the next file in line to be searched.

Records may be viewed in a variety of display formats, as explained above and in Section X. Display formats vary from a few elements contained in the record to the entire bibliographic record.

Users in the INQUIRY function are limited to this use of the system. Users in the SEARCH function may go on to establish standing search requests for titles not yet incorporated in the BALLOTS MRC file. Users in the NETWORK function, however, may proceed to modify or input records as follows.

Once a record has been found, the user in the NETWORK function may modify any part of the bibliographic information, using BALLOTS commands (see Section IX) to add information, delete information, modify data already in the record, and add holdings information. If a record is not found in the BALLOTS files, a staff member may create a record. Creating new records and modifying existing records are done on the appropriate input format. The system will display an error message whenever it detects a mistake in the user's manipulation of the data. This editing of the user's work where possible assists the user to complete his record creation properly.

Records for titles cataloged by a network library are assigned an identification number by the system and are added to a temporary file, the Print Data Queue. During the day when these titles were cataloged, a library may use this PDQ number to

---

*"Default" is used in this Guide to mean an action taken by the BALLOTS system when no other information is given by the user. Defaults may always be changed by an explicit user command. For example, the length of a frame is set by the system to 24 lines. If another length is desired, the user must issue a form of the SET command that states the desired length.

II. SYSTEM OVERVIEW cont.

further modify or to delete records in the temporary file. Periodically, based on each library's requirements, these records will be transmitted in machine-readable form to the owning library or to a commercial firm for further processing to meet local requirements.

Again, sample sessions at the terminal, including both searching and cataloging techniques, are reproduced in Section XII.

III. GETTING STARTED: A TERMINAL, A STANFORD ACCOUNT, AND A TYMNET ACCOUNT

The BALLOTS network system is entered by dialing up the Stanford computer directly or through the TYMNET communications system. In order to search and use records from the BALLOTS files, one must have:

- a terminal capable of communicating with the Stanford IBM 370/168 computer
- a valid Stanford 370/168 computing account number

TYMNET users must have a valid TYMNET account number.

Terminals

A wide variety of typewriter, video display, or video-display-plus-printer terminals and modems can be used with the BALLOTS system. (A modem is a device that provides for error-free data transmission over distances, in this case by telephone lines.) Appendix E contains a set of guidelines for selecting terminals able to communicate with Stanford's IBM 370/168 computer.

The PLAN libraries use the Zentec 9002B CRT (cathode ray tube) video terminal and a Qume printer. Any BALLOTS network user can acquire this equipment, which is described in Appendix B.

A Stanford Computing Account

Computer access to the 370/168 is granted on the basis of a formal request made on an application form submitted to the Stanford Center for Information Processing (SCIP) Accounting Services Office. Forms annotated for BALLOTS users are available from the BALLOTS Center, SCIP - Willow Trailer, Stanford University, Stanford, CA, 94305 (415/497-3741); when filled out, the forms should be returned to the Center. The Stanford computing account number is assigned on receipt of this form. It consists of a three-character user name and a two-character group code.

Figure 1 is a sample of the form that must be filled out to open a computer account. You should specify a dollar limit on your account; you will be prevented from using the account when the dollar limit is exceeded. Non-Stanford users also need to fill out two additional forms, "Request for BALLOTS Account", shown in Figure 2, and "Supplement to Application for Services", shown in Figure 3. The $25.00 deposit mentioned in item 5 on the Supplement is not required from BALLOTS users.

January 1976

FIGURE 1

SCIP - APPLICATION FOR SERVICES

YOUR NEW SCIP ACCOUNT NO IS:	Group Code	User Code
	13	
OUTPUT BIN ASSIGNED IS:		

PLEASE FILL IN WHERE XXXX's ARE INDICATED.

XXXX Keyword = _ _
TYMSHARE =
XXXX PASSWORD = _ _ (TYM
SHARE Users Only)
LI =
MANUAL SENT= Yes No
LEVEL =

A. SERVICES:

☐ Batch Services
☒ Interactive Services (WYLBUR, ORVYL, SPIRES)
☐ Other ____________________
(e.g., auxiliary services only, such as keypunching)

B. ACCOUNT LIMITS/RESTRICTIONS:

(TRA) ________ No. of Tracks — VS/WYLBUR Disk Storage Tracks Limit
(Complete only if you wish to have an upper limit associated with this account.)

________ No. of Blocks — ORVYL Disk Storage Files
(Complete if you require more than 250 2048-byte blocks of ORVYL file disk storage capacity.)

XXXX (BL) $________ — Fiscal Year Budget Limit (Fiscal Year = Sept. 1 to Aug. 31)
(Complete if you wish notification sent to the user and sponsor of this account when the Year-to-Date dollar expenditure amount exceeds the specified budget limit. Charges over the budget limit are still the responsibility of the user.)

(AY) ☒ yes ☐ no — Account Suspension on Budget Limit Overrun
(If set, this option will make your account inaccessible when the budget limit is exceeded. Disk/tape files will be saved and you will be charged for storage costs.)

(AX) ________ Date — Account Expiration Date
(Complete if you wish this account closed on a specific date.)

☐ yes ☒ no — Job Limits
(Complete separate supplemental form if you wish job limits. Job limits will cause rejection of a job at time of submission if estimates of CPU time, lines, etc. specified for your job are greater than the limits specified on your supplemental form.)

C. ACCOUNT INFORMATION:

(UN) University Account Number 0-ZZZ-001-1344;

X (AD) Account Description ____________________ (e.g. BALLOTS-Search)
(Optional - This description will appear on your invoice. It can be used for billing reference information, project name, or any other information you wish to appear on your invoice.)

Monthly Detail Requested ☐ yes ☒ no (Complete if you wish a listing of all jobs and terminal sessions for your account sent to you at the end of each month.)

D. MAILING INFORMATION:

(AN)

USER:
(For multiple users, inquire about group accounts.)

XXXX Name ____________________
XXXX Department ____________________
XXXX Mailing Address ____________________
(Complete only if other than Dept.)
XXXX ____________________
XXXX Prof. Mr. Dr. Mrs. Ms. Miss (Circle title) — Faculty Staff Other ________ Grad Student Undergrad Student (Circle affiliation)

SPONSOR:
(Person who can authorize expenditure of funds)

Name ____________________
Department ____________________
Mailing Address ____________________
(Complete only if other than Dept.)
____
Prof. Mr. Dr. Mrs. Ms. Miss (Circle title) — Faculty Staff Other ________ Grad Student Undergrad Student (Circle affiliation)

E. USER AGREEMENT:

SCIP accounts for computing services are provided on the condition that their use be limited to Stanford faculty, staff, students and other qualifying users and that work done be non-proprietary and publishable. I agree that I shall respect the rights of privacy, the property rights and the copyrights in data and computer programs belonging to Stanford University. I agree that I shall not make unauthorized use of any account or knowingly grant use for unauthorized purposes and I understand that unauthorized use of any account may result in damage to others and is punishable under University judicial process and by law. I shall, further, respect the rights of others and shall not knowingly use computing services in any way which is disruptive or damaging to SCIP or other users. By signature below, I certify that the information I have supplied on this application is true and accurate, and that I have read, understand and agree to the foregoing.

XXXX

________ (Account User) ________ (Phone) ________ (Date) ________ (Account Sponsor) ________ (Phone) ________ (Date)

ACCOUNTING OFFICE USE ONLY

(TC) Transaction Code (AR) Accounts Receivable Group (SF) Source of Funds Code

REQUEST FOR BALLOTS ACCOUNT

1. Access to the BALLOTS system by:

   ( ) Direct Dial-up

   ( ) TYMSHARE

2. Level of Service:

   ( ) Inquiry (retrieve & display)

   ( ) Search (inquiry plus standing search)

   ( ) Network (inquiry, standing search, and tape generation)

(Note: Network accounts require special negotiation regarding tape formats, frequencies, etc. Other services are available immediately. It is also possible to change level of service by notifying the BALLOTS Center.)

FOR BALLOTS USE ONLY:

User Name:
Group Code: BQ
Keyword: _ _ _

User Name:
Group Code: BT
Keyword: _ _ _

TYMSHARE Name:
Password: _ _ _

FIGURE 2

SUPPLEMENT TO APPLICATION FOR SERVICES

STANFORD CENTER FOR INFORMATION PROCESSING

This form is to be completed when the user of computing services will not utilize Stanford University restricted or unrestricted funds in paying for his account.

1. User Classification (check applicable category)

   ☐ Affiliated with Stanford University
   ☐ Affiliated with a college or university other than Stanford
   ☐ Affiliated with the federal government
   ☐ Affiliated with a non-profit foundation or organization
   ☐ Affiliated with a profit-motivated organization

2. In addition to the terms and conditions listed on the basic application for services, the user agrees to abide by the following:

   a. Work conducted will be in accordance with the university policy concerning research at Stanford, particularly the requirements for openness of results consistent with the rights of the individual to privacy.

   b. The user will not resell services or make his account available to individuals or organizations other than his own.

   c. The name of Stanford University will not be associated in published materials with work done at the Stanford Center for Information Processing.

3. The Stanford Center for Information Processing reserves the right to terminate services of users in violation of these agreements. Further, Stanford University makes no warranty, express or implied, as to the fitness of the services offered for a particular purpose. Rates charged are subject to change. The user also certifies that services of a like nature are not readily available from commercial sources.

4. The user assumes all risks associated with the use of university computing facilities, including loss of data or programs through system malfunction or malicious mischief.

5. Terms are net 30 days. OVERDUE ACCOUNTS ARE SUBJECT TO 1% PER MONTH LATE PAYMENT CHARGE AND MAY BE CLOSED WITHOUT NOTICE. A non-refundable $25 prepayment is required when opening an account.

FIGURE 3

Signature ______________________________ Date ______________

User/Applicant

III. GETTING STARTED: cont.

A TYMNET Account

A TYMNET user name and password are assigned by the BALLOTS Center at the same time a computer account number is assigned. TYMNET charges will appear on the SCIP account one month later than all other BALLOTS charges. The BALLOTS user is responsible for paying the telephone bill from the terminal's location to the nearest TYMNET connection. Appendix C contains the telephone numbers in the United States through which one can reach TYMNET, listed by state and city. Appendix A describes TYMNET log-in procedures as they vary by type of terminal being used.

IV. LOGGING ON

BALLOTS is available from 8:30 am to midnight Pacific Time, Monday through Friday, and for searching only from noon to midnight on Saturday and Sunday. The NETWORK function must not be used for cataloging on Saturday or Sunday.

Dialing Direct

For users dialing up the Stanford computer directly, the telephone number is 415/328-4000. After you have dialed this number, insert the telephone receiver in the modem, type the lowercase letter "a", and hit the carriage return. The system will respond with "-". Type the lowercase letters "scf", and the system will connect you with the 370/168 and begin prompting you for necessary log-on information. This log-on procedure is explained below.

Dialing Through TYMNET

For users going through the TYMNET communications system, when the TYMNET number is dialed and the telephone handset is placed in the acoustic coupler, the terminal will display the message "please type your terminal identifier" or approximately 15 random characters. Type the letter "a" and wait. (This is the TYMNET terminal indentification character for the Zentec terminal; for other terminals, see Appendix A.) This causes the TYMNET communications system to initiate a log-in sequence. (Please note that all other communications with the system are accomplished by typing in your response or command and following it with a carriage return. In nearly all cases, the system will not act on your information until the carriage return key has been depressed.)

The terminal will now display the message "PLEASE LOG IN"; if you hit the carriage return, it will prompt "USER NAME:". Respond with your TYMNET user name. You can key this immediately after the "PLEASE LOG IN" message, if you prefer. (NOTE: with half-duplex terminals like the Zentec, it is very important that before keying your user name you depress the "BACK SPACE" key. If you fail to do this, the communications system will "echoplex" all the characters you type. This will result in two letters being displayed on the terminal screen for every single character typed.)

Next the system will prompt "PASSWORD:". You must then type in your password. This completes the communications log-in procedure, and the system will now respond with the message "PLAN IS ONLINE". You have now reached the host computer at Stanford, to which you must also log on.

IV. LOGGING ON cont.

Log-on Procedures

Once the connection is made to the 370/168 computer (either by dialing it directly or through TYMNET), you must log on, giving your terminal I.D. (a letter followed by two digits, assigned at the same time as the computer account number), account number, keyword, the command "call ballots", and your name. You may choose the name to be input; the BALLOTS system will abbreviate this name to its first three letters. This abbreviation is used by the system as the default value of the "Operator Identification" (OID) data element. This data element is printed on standing search request notices. It may be altered by the SET command. On typewriter terminals, the keyword is overprinted by the terminal processor with a series of miscellaneous characters, to ensure security. This is the log-on sequence:

```
ENCINA LINE 48 13:51:37 01/30/75
TERMINAL? p99 ORA BP
KEYWORD? XXX
COMMAND? call ballots
NAME? eam/orange
[Here you will be shown some current information
on the system titled "BALLOTS NEWS"]
WELCOME TO BALLOTS, EAM/ORANGE
-?
```

The "-?" is the command prompt in BALLOTS. In the above example of on-line dialog, the system prompts and messages are given in upper case and the user's responses and commands are given in lower case. This case distinction is only used here for the sake of contrast: in all on-line activity, the user may select upper case, lower case, or a combination of cases for his responses and commands to the system. When keying cataloging data, you should use the same capitalization you will want to see in the output record. (Note: the output records of some libraries are automatically converted to upper case, regardless of the capitalization used during input.)

If at this point you receive the message "CALL: ILLEGAL", it indicates that although the Stanford computer is operating, the time-sharing portion of system services, including BALLOTS, is not available.

Keywords for new accounts are set by the BALLOTS Center. It is advisable to change the keyword monthly. To change the

IV. LOGGING ON cont.

keyword, follow this sequence after logging on with the old keyword:

```
-? set keyword
ACCOUNT? XXXX
OLD KEYWORD? XXX
NEW KEYWORD? XXX
```

You key in your account number and old and new keywords over the mask of characters provided by the system to make them invisible to others looking at your work.

Keywords may be set to any three characters, except for the following special characters:

,	(comma)
	(blank)
-	(dash)
'	(apostrophe or single quote)
(	(left parenthesis)
)	(right parenthesis)
"	(double quote)
/	(slash)
.	(period)
=	(equal sign)

A successfully completed log-in through both the TYMNET communications system and the Stanford host computer looks like this. (The TYMNET log-on example used here is the Zentec terminal; see Appendix A for terminal variations.

```
please type your terminal identifiera [no blank space is
                                       provided before the
                                       terminal identifier
                                       is typed]
-1017-05--
please log in:aaplanl [hit a backspace before starting to type]
password:cat

PLAN IS ONLINE

ENCINA LINE 105  11:35:03  05/29/75
TERMINAL? p99 ora bp
KEYWORD? dog
COMMAND? call ballots
NAME? eam/orange
```

After you have completed the above log-on procedures and given the command "call ballots", the system will respond with the BALLOTS line-by-line network system.

Your LI (Library Identifier) is set automatically by the account number during the log-on procedure. Account checking by

IV. LOGGING ON cont.

the system determines which functions you will be allowed to enter. For libraries limited to the INQUIRY function, the LI is set to "S"--Stanford. Upper-lower case is set by default.

To terminate a BALLOTS session, key the command "logoff" (See Section IX, "Commands"). The Stanford host computer will then terminate your computing session by giving session statistics. If you are using TYMNET, following this, the communications system will display the message, "DROPPED BY HOST SYSTEM", followed by the message "PLEASE LOG IN". At this point, if you are using an acoustic coupler, you may remove the telephone handset from the acoustic coupler and return it to the handset cradle. If you do not remove the handset from the acoustic coupler, you will remain logged in to the TYMNET communications system for two minutes. After two minutes, TYMNET will terminate the communications session.

V. GENERAL TERMINAL OPERATION AFTER LOGGING ON

Once logged on to the BALLOTS system, reply to the BALLOTS command prompt ("-?") with a valid command. (See Section IX, "Commands".) After each command, depress the carriage return key to transmit the command to the computer.

The first command must be to set the function. Three functions are available to BALLOTS network users: INQUIRY, SEARCH, and NETWORK. To set the function, type "set function search" or "set function network". The system checks the function setting against the account given in the log-on sequence, to determine that you are permitted to use this function. Users not entitled to SEARCH or NETWORK function services need not set any function, for the system will have automatically set INQUIRY for them.

Once the function is set, you may wish to tell the system something about the terminal being used, so that the system may format data properly for that terminal. The information that can be specified is: carriage width, display line length and input line length, whether you are using a cathode ray tube (CRT) terminal, and, if so, the number of lines on the face of the screen. This last measurement is the screen "frame". The system will display as many lines of data as there are in a frame so that the display of data does not "wrap around" and erase previously displayed data at the top of the screen. All of this information is conveyed through the SET command.

NOTE: The default measurements assumed by the BALLOTS system in the absence of any user information are the Zentec 9002B terminal measurements. Even if you are using a Zentec terminal you may wish to use these commands if, for instance, you want to have data displayed at a shorter length than it is input.

"Set carriage <number>" tells the system the physical line width of your terminal (for example, 132 characters for IBM 2741 terminals).

"Set length <number>" tells the system the line length you desire for display and input formats. You may give two separate numbers, separated by a comma or a space; the first number is the display line length, and the second number is the input line length. These lengths must be less than the length given in "set carriage".

The following sequence of commands would be given at a terminal whose physical line width is 80 characters, when the user wishes to see data displayed or printed in lines 50 characters long and to see data formatted for inputting in lines 60 characters long:

```
-? set carriage 80
-? set length 50,60
```

V. GENERAL TERMINAL OPERATION cont.

"Set crt" followed by a number tells the system the number of lines on the face of the terminal screen; for example, "set crt 12" tells the system you are using a CRT with a display capability of 12 lines at a time. "Set crt 0" tells the system that the terminal is a hard-copy typewriter terminal.

If you do not issue the "set carriage", "set length", or "set crt" commands, the system automatically assumes the following values (the Zentec terminal measurements):

carriage: 80
display length: 79
input length: 79
terminal type: CRT - 24-line display

(NOTE: although the Zentec terminal line length is 80 characters, you are advised to set display and input length for this terminal to 79 characters to ensure proper carriage return and line feed on the Qume printer attached.)

If your terminal has a carriage width that is not 80 characters, it is recommended that you always "set carriage" to the width of your terminal. If you do not, the terminal may either skip lines or overtype at the end of the line.

USE OF TABS: You will find it much easier and more efficient to input and update data if you set tabs before you start. To do this, give the command "set tabs". The computer will ask: "TERMINAL?" Type "zentec" or "z" if you are working at a Zentec terminal. Type "gencom" or "g" if you are working at a Gen-Com typewriter terminal. Tabs cannot be automatically set within BALLOTS on any other kinds of terminals. On a Zentec terminal the screen will then go blank. You will then see (on either a Zentec or a Gen-Com):

```
VERIFY          1   1
VERIFY          1   1
TABS INITIALIZED.
```

Once you have set the tabs, you may use the TAB key to tab to the indicator input area and the data input area on any line of any input format. Also, the system will automatically move the cursor to the appropriate input area when it is prompting you for input. (See Section II, "System Overview", and Section XI, "Input Formats".)

You may select various other options on entering the system or at any time during your use of the system (except when you are modifying or creating a record in the NETWORK function). These options are described under the SET command in Section IX.

V. GENERAL TERMINAL OPERATION cont.

The BALLOTS system uses the command prompt "-?" in most cases. Three other command prompts may appear in certain circumstances when one is searching. The first of these is "+B?". This indicates that you are looking at one of a set of records that have been retrieved in response to a search. If you wish to go on to the next record in the set, you need only depress the carriage return key. The second prompt is "-B". This indicates that you have used the REVERSE option in a DISPLAY command. If you wish to go back to the prior record in a set of retrieved records, you need only depress the carriage return key. The third prompt is "+?". This is only given on CRT terminals where the system knows the number of lines on the face of the CRT screen, because of a prior or default "set crt" command. In this case, the system will display as many lines of the record as it can, and then give the "+?" prompt. If you wish to see the remainder of the record, you need only depress the carriage return key. If you do not wish to continue scanning records retrieved in a search, most other commands are also valid in response to these prompts.

In any case, remember that when the terminal types a question mark, it is then waiting for a response.

The BREAK KEY: Nearly all terminals have a key labeled BREAK, BRK, or ATTN (short for ATTENTION). (On Zentec terminals this is the blue function key number 4 in TTY-HD mode.) This key serves two basic functions: it interrupts the computer in whatever processing the system is doing, or it tells the system to ignore what you have just typed, whether it is a command or a line of input. When you depress the BREAK key, three dots (...) or three asterisks (***) will appear on the screen. The system will then return control to you, after an appropriate command prompt (such as "-?").

For example, you might want to use the BREAK key to interrupt the computer while it is displaying a record, if you have seen enough:

```
-? dis con
Record 1 of 2
Surry, Jean.
  Industrial accident research: a human engineering appraisal.
[Toronto, ...
-?
```

Or you might want to interrupt the system's prompting of a line to be modified, once it has typed the part of the line you wish to change:

V. GENERAL TERMINAL OPERATION cont.

```
-? mod 13
   13.     NG       Contributors: Madaleine Stov...
 ALTERS?                             re
   13.     NG       Contributors: Madeleine Stovel and Eleanor
 ALTERS?
-?
```

If you have put in a long command or input line and discover an error near the beginning, you might want to use the BREAK key rather than backspacing to the error and retyping the line. The computer will ignore what you have just typed, and give you the same command prompt that you had just been given. Remember that in this case you use the BREAK key INSTEAD OF the carriage return key. If you hit the BREAK key while you are collecting data on an input format, the line number will be reprompted.

The BREAK key has a special meaning when it is preceded by a commercial at sign (@) or a dollar sign ($) during a MODIFY sequence. See the MODIFY command for this.

NOTE: there is sometimes a delay in TYMNET transmission of the BREAK signal. Therefore, if you do not get an immediate response from the system to the BREAK, do not continue to hit the key, but wait for the response. Because of the TYMNET delay, sometimes you may be uncertain whether the system is responding to your BREAK or has simply reached the end of the activity you were attempting to interrupt. In these cases, hit the carriage return to get the prompt "-?" from the system before you continue your commands.

Infrequently, hitting the BREAK key produces the message:

```
SESSION BREAK AT <location number> ATTENTION (MULTIPLE
ATTENTIONS)
```

You will generally reply "go" followed by a carriage return to this question. (On rare occasions, if you find yourself in a "loop"--where your commands and the system's responses keeping leading in a circle back to the same reiterated dialog. You should then log off and log on again instead of typing "go".)

There are several function keys generally on most CRT and hard copy terminals:

RETURN - this key returns the printing head or cursor to the left-hand margin. In BALLOTS it is used during a session to signal that you have finished typing a line and wish BALLOTS to inspect the line and perform any called-for operations. This key may be labeled "CR", "CARRAGE RETURN", or "RETURN".

V. GENERAL TERMINAL OPERATION cont.

BACKSPACE - this key moves the printing head or cursor one space to the left. In BALLOTS this effectively erases the character from the system's recognition, although it is not erased from the line of text you are currently typing unless you key something else in its place.

TAB - this key causes the print head or cursor to move forward to the next tab setting.

SHIFT and SHIFT LOCK - these keys are used to shift into upper case as on a standard typewriter. Do not enter data in all upper case; the system will convert upper-/lower-case data to all upper case where necessary for magnetic tape output.

ON and OFF switch - this switch serves the function of turning on and off the terminal. It should not be used during a BALLOTS session.

VI. THE FUNCTIONS: INQUIRY, SEARCH, AND NETWORK

BALLOTS network catalog processing is divided into three computerized functions: INQUIRY, SEARCH, and NETWORK.

The INQUIRY function is available to individuals and libraries that want to search the BALLOTS files. The function does not permit a user to establish a standing search request or to create or modify records.

The SEARCH function is available to users that have made arrangements with the BALLOTS Center to search the files and to have automatic standing search requests run against the MRC File. The SEARCH function permits no record in the files to be modified and no new records to be created. The user may receive, monthly, matched SSR and purged SSR notices.

A matched standing search request (SSR) notice is printed when a standing search matches a MARC record. (See Figure 4 in Section XIV, "Printed Outputs".) The standing search is removed from the batch Standing Search Request File when such a match is made against a single MARC record. If the standing search matches more than one record, it is not automatically removed from the file. The user should use the REMOVE SSR command to delete the record from the SSR File.

A purged SSR notice is printed when the time allotted for the repetitive searching (several months, generally) is exhausted. (See Figure 5 in Section XIV.) The standing search is removed from the SSR File. (When the request is established, the user may indicate the number of months, from zero to eighteen, that the search is to be tried against the contents of the MRC File, to which more records are added every week.) If no indication is given, the search will be kept for three months.

Outside of the Stanford University Libraries, which use the "full-face" BALLOTS technical processing system, cataloging through BALLOTS is done through the NETWORK function. The PLAN libraries, for whom the SEARCH function was first implemented in June 1975, began using the NETWORK function in July 1975.

The NETWORK function enables a library either to modify bibliographic records it has found in the BALLOTS data base or to key in its own bibliographic data and produce cataloging output--magnetic tape in the MARC II communications format to interface with the library's own local computing system.

VI. FUNCTIONS cont.

Parts of sections VI, "The Functions", and IX, "Commands", and all of Section XI, "Input Formats", and XII, "Input Procedures", deal particularly with the "input/update mode"; that is, with record creation and/or updating to produce a printed or tape result. The passages of the Guide dealing with the INQUIRY and SEARCH functions contain information often essential to NETWORK users who must search for a record before they can modify it. The capabilities of the SEARCH function are all present in the NETWORK function, so that NETWORK users do not have to reset the function each time they move from record modification to record searching or vice versa.

The NETWORK function is available to library users that have made arrangements with the BALLOTS Center to be full members of the network. The NETWORK function embodies the capabilities of the SEARCH function and, in addition, allows the user to modify an existing record to meet local processing needs or to create a new record.

To set each function (see the SET command in Section IX), you may give the full function name or an abbreviation--i.e., INQUIRY or INQ, SEARCH or SEA, NETWORK or NET. All four BALLOTS on-line files--BALLOTS MARC File (MRC), In Process File (IPF), Catalog Data File (CDF), and Reference File (REF) can be used in each of the three functions. The default sequence in which they will be searched by the system in response to your search requests is: (1) MRC, (2) REF, (3) CDF, (4) IPF. In each function, when records are found that match a search request, the default display format for viewing them is the Brief Data Display Format (SHORT). (Records from the Reference File, however, are always shown on the Reference Display Format--REF).

In all three functions, if a search results in a single record being found, the record is displayed and no default command is prompted by the system. If a search results in several records being found, the system prompts the command "+B" unless the display command given dictates otherwise--that is, "dis 3 rev" (see the DISPLAY command) will cause the system prompt to be "-B" rather than "+B". See the paging commands in Section IX. (Note: neither +B nor -B is prompted for the last record in a set of search results.) On a video display format, +B will only be prompted on the last frame of a display format that runs to more than one frame. The "+" command will be prompted on all preceding frames.

VII. FILES AND INDEXES

A. THE FILES

The BALLOTS system supports several on-line files, each accessible through as many as seven indexes.

- The MARC (MRC) File contains Library of Congress cataloging for English, French, German, Spanish, and Portuguese language monographs.
- The In Process File (IPF) contains bibliographic and acquisition or in-process control information.
- The Catalog Data File (CDF) contains bibliographic and holdings (shelving location, copy number, and call number) data.
- The Reference (REF) File contains "see", "see also", and explanatory references to catalog data.

At this time, two libraries (the Stanford University Libraries system and the Meyer Undergraduate Library) have their own In Process, Catalog Data, and Reference files. In order to distinguish records belonging to the two libraries, the name of the file is prefixed by the Library Identifier. ("S" is the Library Identifier for Stanford; "M" is the Library Identifier for Meyer.) When no distinction of this sort is made, searching these files will produce records for both libraries. References below to the "CDF" (Catalog Data File) etc. refer to the combined records of both libraries. The MRC File is shared by all the libraries using the system. Records in any of these files may be used by BALLOTS line-by-line system users as the basis for cataloging titles.

A Standing Search Request (SSR) file is also part of the BALLOTS system. This is a file of search requests established in the SEARCH or NETWORK function, awaiting incoming Library of Congress MARC records. The SSR file is used only to perform searches against the MARC File, and is not accessible for on-line searching.

The daily queue of input transactions created by users for overnight processing by the system may also be thought of as a file, though the commands to access it differ from the usual searching commands. This file is called the Print Data Queue (PDQ). At present, the records created by BALLOTS network members to catalog titles are not retained in any on-line file. Future system development will provide the ability to retain an on-line bibliographic record for each title cataloged by a network member, including the local call number, library code, and the holdings of each library owning the title.

VII. FILES cont.

The characteristics and use of the MARC and other files are discussed below, followed by a discussion of each index.

BALLOTS MARC (MRC) File

The MRC File is updated once a week with records received from the Library of Congress on magnetic tape. LC MARC tapes are converted into BALLOTS internal format and incorporated into the MRC File and its indexes. Records may be copied from the MRC File for use as the basis for a cataloging record, but they are never changed (by the user) in the MRC File. If a revised MARC record arrives, the first record is deleted and replaced by the revised version. This automatic replacement of MARC data occurs only in the MRC File.

The file contains MARC records from January to May 1972 and from September 1972 to the present. (The gap is due to funding and time constraints during 1972.) Before February 1975, juvenile titles and a few Library of Congress classifications were excluded from the MRC File. These exclusions ceased on February 1, 1975, and all incoming MARC monograph records are now added to the file.

Four indexes may be used alone or in combination to search the MRC File. These are:

1. Personal Name
2. Corporate/Conference Name
3. Title Word
4. Library of Congress Card Number

Catalog Data File (CDF)

The CDF contains complete bibliographic descriptions and holdings information (i.e., the copy number and shelving location of each copy) for items cataloged. An In Process File record (see below) becomes a CDF record at the time the book is cataloged through the automated system by a library that has its own IPF and CDF. The bibliographic descriptions of items cataloged may come from various sources, e.g., MARC records, LC or NUC book catalog copy, Title II cards, LC proof slips, or original cataloging efforts. All bibliographic descriptions except MARC copy are keyed into the system by a user, either at the time of acquisition or at the time of cataloging. These records are reviewed during cataloging and are upgraded or modified as necessary to conform to cataloging conventions.

VII. FILES cont.

The CDF has the same indexing scheme as the MRC File plus three more valid indexes:

5. BALLOTS Record Identification Number
6. Library of Congress Subject Heading
7. Call Number

In Process File (IPF)

The IPF contains bibliographic and acquisition information for items on order or in process. If a title is ordered from a record found in the MRC File, the IPF entry for that book will contain a copy of the MARC record (either unmodified from MARC or modified at time of order by the user) and the acquisition information input at time of order. If a record is not found in the MRC File for the title to be ordered, and the title is not an added copy to a book already in the system (i.e., a record for the title does not already exist in the IPF or the CDF), then the Acquisition Department enters the most reliable bibliographic description available for the item. When the bibliographic description of an item is input, its source is indicated for later use in cataloging.

If the book ordered is an added copy to a title already in the CDF, the CDF record is used to order the added copy. Acquisition data is added and the CDF record can then be retrieved as an IPF record as well as a CDF record. Every physical item ordered or in process is represented by a separate set of data elements in the IPF record for that title, so that partial receipts, partial claims, and other partial record transactions can be handled. Status information attached to each item clearly indicates the location of each item or items in the stream of technical processing activities.

When all the technical processing for a title in the IPF is completed (i.e., the items in process are cataloged or the order canceled), the IPF status of the record is deleted from the indexes to the record, the acquisition information is deleted, and only a Catalog Data File record remains.

The IPF has five indexes that can be used alone or in combination to search the file. These are the same as the first five indexes listed for the CDF.

Reference File (REF)

The REF File contains all the references required to locate a title in the CDF. These records are of three basic types: (1)

"see" references, (2) "see also" references, and (3) explanatory/history references. One can use the information found in the REF File records to search the MRC File, but should remember that Stanford headings vary occasionally from Library of Congress headings, so the results of such searches may be incomplete. The REF indexes are:

1. Personal Name
2. Corporate/Conference Name
3. Title Word
4. Subject Heading
5. BALLOTS Record Identification Number

The Catalog Data and In Process files are updated daily and indexed overnight, making new records available for outside searching the following day.

Standing Search Request File (SSR)

A user may, in this file, institute an automatic regular search of the MRC File for entries expected to appear in a future weekly LC MARC tape. These automatic searches of the MRC File may be repeated for any number of months specified by the user. With this file, a library has the option of delaying original cataloging until an expected MARC record arrives and is added to the MRC File. A record is entered into the SSR File by the KEEP command. It may be removed by the REMOVE command. Once entered, the SSR record is not available for on-line display or update. (See Section VIII, "Searching Procedures".)

Print Data Queue (PDQ)

The Print Data Queue contains records that have been updated or newly created during the day. It is processed and erased each night. An entry is made in the Print Data Queue as a result of the ENTER command, and a PDQ number representing the record is returned to the terminal user. The PDQ record is accessible only by this number through the RECOVER command. It may be removed by the REMOVE command. It is the PDQ records input by a library in the NETWORK function that are reformatted and output for that library on magnetic tape.

VII. FILES cont.

B. THE INDEXES AND THEIR USE

Each BALLOTS file is accessible through a number of indexes. Each index is described below, including its searching aliases and a list of the data each contains.

Personal Name (PN, A, AUTHOR) Index

If values exist in a record for any of the following data elements, the personal name portions of those values (i.e., excluding dates and relators like joint author or title) are indexed in the PN index. For the following files, the data elements indexed are:

MRC, IPF, CDF:	Personal names from the main entry, added entry, series statement, series added entry.
CDF additional:	Personal name subject.
REF only:	Personal name referred from.

Title portions of author/title entries are indexed in the Title Word index. A series statement personal name is indexed only if it is traced in the same form.

You may search the PN Index on virtually any form of a name. You may truncate the surname using the truncation symbol, a pound (number) sign (#), but there must be at least three characters preceding the truncation symbol. The system assumes that given names are always truncated. This is so that when you search on an initial, the system will always retrieve a first or middle name in its fully spelled out form.

The following values given in a "fin pn <name>" search will all retrieve the name "Jon Ewbank Manchip White":

WHITE, J.E.M.	(initials, surname first)
White, M.	(some initials omitted)
White, J E M	(initials without periods)
white, jon ewbank manchip	(capitalization ignored)
J.E.M. White	(surname last)
Manchip White, J.E.	(surname embedded)
White, Jo Ewb Man	(implicit truncation of forenames)
Whi#, J.E.M.	(explicit truncation of surname through use of pound sign)

The search "find author E. J. White" will not retrieve the name "Jon Ewbank White" because given names must appear in the search in the same order as they appear in the record itself.

VII. INDEXES cont.

Note that "fin pn j white" will retrieve "Jon White", "James White", "Joanna White", "Alexander J. White", etc. Also, "fin pn jon white" will retrieve "J. M. White", "Alexander Jonathan White", "R. J. White", etc.

Compound surnames (for example, "Teilhard de Chardin, Pierre") may be searched on either the first element of the surname (e.g., "Teilhard") or on the last element of the surname (e.g., "Chardin"). Note again, however, that the names must be in their proper order. (I.e., the searches "fin a Teilhard, Pierre Chardin" and "fin a Pierre Chardin Teilhard" will not retrieve "Pierre Teilhard de Chardin".) This facility is particularly useful for Spanish and Portuguese names, where the person frequently uses only the first element of his last name. For example, Salvador Allende, the former president of Chile, is entered in the files as "Allende Gossens, Salvador".*

Most punctuation marks are removed and the space they occupy closed up in the Personal Name Index. Therefore the following searches are equivalent:

```
fin a O'Hara, John
fin a Ohara, John
```

Exception: the hyphen (-) is changed to a blank space. Therefore the following searches are equivalent:

```
fin pn day-lewis, cecil
fin pn day lewis, cecil
fin pn lewis, cecil day
```

But "fin pn daylewis, cecil" will not retrieve the same record as these searches.

---

*Please note that the facility of searching on the first or the last element of the compound surname was added to BALLOTS in November 1974. Records in the file prior to that date are retrievable only on the last element of a compound surname. Therefore, you will frequently find a reference from the first element to the full surname. E.g., "Allende, Salvador, see Allende Gossens, Salvador". There are no cross-references in the MRC File. Therefore we suggest that when you discover that the name you are searching (in any file) is part of a compound surname, you should repeat your search using the last element of the surname, to be sure you have retrieved all the applicable records. Note, too, however, that it is the practice in the Meyer Catalog Data File to enter a person under the name that the author used. If a person writes under only one portion of his compound surname, he will be entered that way in the Meyer CDF.

VII. INDEXES cont.

Corporate/Conference (CN) Name Index

The CN index is a "word" index. In a word index, every significant word in the value of an indexed data element is indexed.

For the following files, the data elements indexed are:

MRC, IPF, CDF: Corporate/conference entries from the main entry, added entry, series statement, and series added entry.
CDF additional: Corporate/conference subject.
REF only: Corporate/conference names referred from.

Title portions of author/title entries are indexed in the Title Word Index. A series statement corporate or conference author is indexed only if it is traced in the same form.

Some words are not indexed in the Corporate and Conference Name Word Index because they are too common. These words are called "exclusion words". Although you may include them in your search request, the system will ignore them.

The Corporate and Conference Name Word Index exclusion words are:

a, ad hoc, an, and, assembly, associated, associates, at, board, centers, centres, co., college, commission, company, convention, corp., corporation, dept., federation, for, from, general, group, in, inc., laboratories, laboratory, ltd., of, on, school, standing, US, working.

You may truncate corporate and conference name words in order to search on word stems. The truncation symbol is a pound (number) sign (#). There must be at least three characters preceding the truncation symbol. For example:

```
fin cn machin#
```

will retrieve International Business Machines, Woodside Machinery Corporation, Associated Machinists, George's Machine Shop, etc.

When the system processes a search request, it removes all special characters and punctuation marks and closes up the space they occupy. Thus, the following searches are equivalent:

```
fin cn I.B.M.
fin cn IBM
```

VII. INDEXES cont.

Title (T, TITLE, WORD) Index

The T index is a word index like the CN index. The data elements indexed are:

MRC:	Title words from the main entry (title and uniform title), short title, added entry, series statement, and series added entry.
IPF, CDF:	Data elements listed for MRC plus the title portion of author/title added entries.
CDF additional:	Subject that is a title.
REF only:	Title words referred from.

Some words are not indexed in the Title Word Index because they are too common. These words are called exclusion words. Although you may include them in your search request, the system will ignore them. The Title Index exclusion words are:

a, about, account, across, address, addresses, advanced, an, analysis, and, annotated, annuals, anthology, application, applications, atlas, autobiography, basic, beginning, biannual, biographical, biography, book, by, calendar, casebook, colleges, compendium, development, developments, dictionary, elementary, elements, encyclopaedia, encyclopedia, for, from, glossary, great, guide, history, how, illustrated, in, indexes, into, introduction, general, joint, journey, lexicon, life, literature, lives, manual, minutes, narrative, of, official, on, or, practical, principles, readings, series, some, special, stories, story, supplementary, textbook, the, topics, to, what, with, workbook.

You may truncate title words in order to search on word stems. The truncation symbol is a pound (number) sign (#). There must be at least three characters preceding the truncation symbol. For example:

```
find t librar#
```

will retrieve books with the following words in their titles:

librarian, librarians, librarianship, libraries, library

When the system processes the search request, it removes special characters and punctuation marks in title words and closes up the space they occupy. Thus, the following searches are equivalent:

```
find title on-line
find title online
```

Library of Congress Card (CRD, CARD) Number Index

The one BALLOTS data element indexed in this index is the LC card number, and only the numeric portion (excluding revision, prefix, and suffix notations) is indexed. It is indexed for MRC, IPF, and CDF records.

You may truncate card numbers in a search. The truncation symbol is a pound (number) sign (#). There must be at least one character preceding the pound sign.

```
-? fin crd 751169#
```

BALLOTS Identification (ID) Number Index

Each record in an IPF, CDF, or REF File has a unique ID number that is added to the record when the record is created. The final digit is a check digit. If the check digit is keyed incorrectly in a search, you will get the message "INVALID ID". Truncation is not allowed in ID searches. An ID search is the only kind of search where the index name or alias may be omitted.

```
fin 2545870
fin id 2545870
```

Subject (S, SUBJ, SUBJECT) Index

Only topical and geographic subject headings are included in this index for records in a CDF or REF File. The subject index is not a word index; the whole subject heading is treated as a single index term.

In subject searching, you must know how the subject is established in the Library of Congress subject heading list, since Stanford libraries use these subject headings. For example, "computers" may be found under a variety of headings, such as "Electronic digital computers," as well as under "Computers," but a subject search for one will not retrieve the others. Truncation in this index is on the subject heading as a whole. The truncation symbol is a pound (number) sign (#). E.g.,

```
-? fin s computers#
```

yields books with the following subject headings:

Computers
Computers - Addresses, essays, lectures
Computers - Congresses
Computers - Dictionaries
Computers - Exhibitions
Computers and civilization
(etc.)

```
-? fin s electronic digital computers#
```

yields:

Electronic digital computers
Electronic digital computers - Addresses, essays, lectures
Electronic digital computers - Circuits
Electronic digital computers - Memory systems
Electronic digital computers - Programming
Electronic digital computers - Programming - Addresses, essays, lectures
Electronic digital computers - Programming - Problems, exercises, etc.
(etc.)

You could narrow this search as in these examples:

```
-? fin s electronic digital computers - memory systems
-? fin s electronic dig# addresses
```

In the first search, no truncation is used and the full subject heading is spelled out. (To obtain the desired result, the blank spaces before and after the hyphen must be keyed.) In the second search, the characters following the truncation symbol (#) are taken as a string and matched to the remainder of the heading after the characters preceding the # have been located. The second search above would yield:

Electronic digital computers - Addresses, essays, lectures
Electronic digital computers - Programming - Addresses, essays, lectures

VII. INDEXES cont.

The following examples provide more illustration.

SEARCH	REMARKS
fin s art	Retrieves records with the heading "Art" alone.
fin s Women#	Retrieves records with a subject heading that begins with the character string "women", followed by anything else. For example, this request would retrieve "Women's writings, Chinese", "Women in the United States - Addresses, essays, lectures", "Women in art", "Women's liberation movement", "Women in Great Britain - History".
fin s Women# history	Retrieves records with subject headings that begin with "Women", followed at any point in the rest of the heading by the character string "history". For example, this request would retrieve "Women in Great Britain - History", or "Women's liberation movement - History", or "Women in Greece - History".
fin s Women# his	This request has the same effect outlined for the last type of search request. (Note that the truncation symbol within the request causes the system to assume an implicit truncation of the character string following.)
fin s women # his	Retrieves "Women in Great Britain - History", but not "Women's liberation movement - History", because position of truncation symbol specifies that there must be a blank after the word "women".

VII. INDEXES cont.

SEARCH	REMARKS
fin s wom# his	Retrieves, for example, "Women in Great Britain - History", "Women - History and condition of women", "Woman - History and condition of women - Addresses, essays, lectures".
fin s women - #	Retrieves, for example, "Women - History and condition of women". It would not retrieve "Women in Great Britain - History".
fin s wom# - history	Retrieves "Women in Great Britain - History and condition of women". It would not retrieve "Women in history".
fin s Modern Art	This would not retrieve "Art, Modern". A subject "see" reference record would be retrieved in this case.
fin s wom#bibliography	Retrieves "Women - Movement - Bibliography" and "Women - Movement - Biobibliography".
fin s wom# bibliography	Retrieves only the first example immediately above.

As Section VIII, "Searching Procedures" explains, AND, OR, NOT, and parentheses have logical functions in searching. In subject searching, these are frequently a part of the subject heading to be searched. For example, "Cities and towns" and "Discoveries (In geography)" are LC subject headings that are used in the Catalog Data File. Headings that contain AND, OR, NOT, or parentheses must be enclosed in quotation marks when they are searched in the subject index.

```
fin s "cities and towns - canada"
fin s "discoveries (in geography)"
```

All the usual features of logical operations and truncation are available. For example:

```
fin s "cities and towns# u.s." and architecture - u.s.#
```

This will retrieve a book that has the subject headings "Cities and towns - Planning - U.S. - History" and "Architecture - U.S. - History".

VII. INDEXES cont.

You may or may not find a cross-reference from the heading you are using to the heading under which you will find the subject. If you find a reference, you must retype the search using the heading indicated in the reference. (This is true of all searches.)

When the system processes a search request, it removes all special characters and punctuation marks except the hyphen (-) and closes up the space they occupy.

In the IPF, CDF, and REF files (but not in the MRC File), personal names as subjects are indexed in the Personal Name Index. Corporate or conference names as subjects are indexed in the Corporate and Conference Name Index. There is no subject indexing in the MRC File.

Call Number (CAL) Index

The CAL index is valid only for records in the Catalog Data File. The only data element indexed is the holding library's call number.

You may truncate call numbers in a search. The truncation symbol is a pound (number) sign (#). There must be at least one character preceding the pound sign.

If you know the classification in the Library of Congress scheme of the subject you are interested in (for instance, "JK" for political science in the United States), you might use a search like:

```
-? find cal jk#
```

This will retrieve all the books in the CDF that have a classification (or call number) beginning with JK.

NOTE: This mechanism does not work well with Dewey classifications for two reasons. First, most Stanford books are classified by L.C. call numbers and not by Dewey. Second, the Call Number Index is combined with the L.C. Card Number Index. This means that a search like "find cal 745#" will retrieve all the books whose L.C. card number starts with 745 plus all those whose Dewey call numbers are in class 745.

WARNING: a truncated search tends to be an EXPENSIVE kind of search, because it is liable to retrieve a large number of records. Unless you are intent on making an exhaustive search, you are advised to make your search requests as restrictive as you can and still obtain the desired range of titles. See the Hints for Efficient Searching in Section VIII, "Searching Procedures".

VIII. SEARCHING PROCEDURES

The BALLOTS search logic can be quite simple or quite elaborate. Simply stated, the user at the terminal keys a search request composed of the basic command "find", a valid name of the index to be used, and a value or values to be located. "Find t fire" will cause the system to gather a list of the records in the file that conform to this criteria--i.e., have the word "fire" somewhere in a data element indexed in the title word index (T).

Since the characteristics of the individual indexes vary, the details of searching any given index are given in Section VII, "Files and Indexes".

If a request contains more than one index-value pair, each pair must be connected with one of the logical operators AND, OR, or AND NOT. On ASCII terminals, the symbol & is a valid for AND; ¦ is valid for OR; and &~ is valid for AND NOT. EBCDIC terminals use &, |, and &¬.

Note that when several values are given for an index, the index name need not be repeated. If several index values in a word index (T or CN) are specified without logical operators, "and" is assumed and thus need not be specified (example 2 below). A request may also combine more than one index using the same logical operators, as in example 4 below.

Examples:

1. Find Title Honor
2. Fin T Glory Road
3. Fin PN SMITH & JONES
4. Fin PN Smith and Jones and T Honor
5. Fin t chemistry | steroids
6. Find T automation & ¬library
7. Fin Author Smith and Jones or Brown
8. Find Author Smith or Brown and Jones
9. Find author Schneider or Meyer and Hastings
10. Find Author Schneider or (Meyer and Hastings)

The logical connector AND or & has a restricting effect on the search because it adds additional criteria with which a record must comply. In example 3, the results will be only the records that contain both a personal name "Smith" and a personal name "Jones". In example 4, the results are further limited to the records that also have the word "honor" in their titles.

The logical connector OR or | has an expanding effect on the search. In example 5, the results will be all the records that have either the word "chemistry" or the word "steroids" in the title.

VIII. SEARCHING cont.

The logical connector AND NOT or & ¬also has a restricting effect on the search. In example 6, the results will be the records that have the word "automation" in a data element indexed in the title index but that explicitly do not have the word "library" in the title.

The system processes logical operators from left to right. Different results can be obtained by changing the order of the search terms. Thus, the results obtained from examples 7 and 8 are different. The left-to-right rule of precedence can be altered by the use of parentheses. Logical operators are performed from left to right within a parenthetical group, starting with the innermost set of parentheses. There must be an equal number of left and right parentheses. Examples 9 and 10 show different results produced by such strategy. Example 9 will produce books authored by Schneider and Hastings or by Meyer and Hastings. Example 10 will produce books authored by Schneider or by Meyer and Hastings.

Most index values can be shortened or truncated so that you may search on a word stem. The truncation symbol is a pound (number) sign (#). The possibilities for truncation vary with the indexes and are described in Section VII, "Files and Indexes".

The function or mode of processing being used determines the files that are searched and the sequence in which they are searched as a default option. In addition, you may specify on-line which files are to be searched and the order in which they are to be searched. You may also specify that you wish to search, for example, only Stanford's Catalog Data File records, or only Meyer's Catalog Data File records, or that you wish to search the Catalog Data files of all the libraries using the system. This specification is achieved by using the SET command (see Section IX, "Commands").

If the initial search of a file yields zero results, the system automatically goes on to search the next file in the sequence. If a single record is found in a file, the system automatically displays or prints it for you. If more than one record is found that meet the search criteria, the system informs you of the number of records matched. At this point, you can narrow the search by specifying additional requirements in an interactive session with the system. If you end up with zero results as a consequence of your commands, the system will retain the last non-zero result obtained. If you end up with too few results, you may issue the "backup" command to reinstate the last previous result stack.

You can now give the command "display", and BALLOTS will show you the first record of the result stack (the records retrieved in the search) on the CRT terminal screen. Paging commands can be used to see each record in turn, moving forward or backward though the result stack. (See Section IX, "Commands".)

The display of data in searching is organized to be as meaningful as possible for the specific task. Data can be displayed or printed in a variety of formats. See Section X, "Display Formats".

In searching, you may or may not find a cross-reference from the entry you are searching to the entry actually used in the Catalog Data File. If you find a reference, you must retype the search using the entry indicated in the reference.

Hints for Efficient Searching

The following list* gives hints for efficient searching. (An efficient search yields the same results and is cheaper in terms of computer time than an inefficient search.) These suggestions are oriented toward the kind of search that aims to retrieve a single book, the usual effort in library technical processing.

1. Recheck your search formulation before transmitting it, in order to detect misspelling and inaccuracies, such as leaving out an index name.

2. Use the fewest number of terms in your search argument consistent with finding the book you are seeking.

3. Use the most unusual or highly specific words in your search.

4. Avoid using common words in your search argument in the Title and Corporate and Conference Name Word indexes. Examples of such words in the Title Index are: american, art, library, man, modern, news, politics, revolution, science, society, united, war. Examples of such words in the Corporate and Conference Name Word Index are: american, britain, development, economic, education, library, new, research, states, united. (These words are not on the exclusion lists for these indexes, because they do have significance for searching. However, because the index entries for these words point to so many records in the file, it takes a lot of computer time to process them when they are included in the same search with other terms.)

---

*This section is based on a list prepared by Fred Lynden, Assistant Chief of the Acquisition Department, Stanford University Libraries.

VIII. SEARCHING cont.

5. Use as much of a personal name as you are sure of. That is, "fin pn martin, robert" is more efficient than "fin pn martin, r". It also saves your time, because it is likely to retrieve fewer records for you to look at.

NOTE: if you issue a search like "fin pn martin, robert", the system will retrieve as part of the search results any records connected with "martin, r" as well.

6. Avoid truncating terms in your search unless it is absolutely necessary.

7. If you know the Library of Congress card number, use it when searching the files. Use the BALLOTS assigned identification number, if you know it from previous searching, when searching the CDF, IPF, or REF File.

8. When a search takes one-third second of computer resources without reaching a conclusion, the user is advised with the message

LONG SEARCH -YES TO CONTINUE

If you respond "yes", BALLOTS will continue with the search until a search result--positive or negative--is achieved, or until another one-third second of computing resources has been used up. After another search, the system will repeat the "LONG SEARCH" message.

If you want to terminate the search, reply "no". The system will then give you the results of the search up to its termination in the form

UNCERTAIN RESULT: <Number of records> in <file name>

In the case of long searches, if possible the search should be reformatted. You are recommended to reply "no" in such cases and then to recast your search.

Standing Searches

All of the information presented thus far in this section applies to standing searches in the SEARCH or NETWORK function. (Users of the INQUIRY function cannot establish standing searches and will be unable to make use of the information that follows.)

If the search you have typed in finds no results in the BALLOTS on-line files, you may not want to give up on it. The

VIII. SEARCHING cont.

BALLOTS Center receives another tape of MARC records from the Library of Congress each week, converts these records to the BALLOTS record format, and adds them to the MRC File--so a search that failed one week might meet with success in another week or more, as new records enter the MRC File. If you turn your search into a "standing search", the system will search the MRC File with your request automatically once a month for as long as you specify (up to 18 months), without your having to take any further action. If no match is made in the specified period, the system automatically purges the request from the Standing Search Request (SSR) File.

When you have a search request that has gotten zero results, you can turn it into a standing search request simply by typing "keep". This will cause the system to use the current form of your search request* to create a record in the SSR File. This record also contains:

- The next sequential SSR record number;
- FD ("File Date") equal to today's date;
- RD ("Removal Date") equal to today's date plus designated number of months, or if no period specified, equal to today's date plus three months;
- LI ("Library Identifier") of your institution;
- OID ("Operator I.D.")--either the first three letters of the name you gave in logging on to the system, or the initials you may have afterwards set using the SET OID command;
- LSI ("Local System Identification Number") given in your KEEP command (see below)

The system informs you of the SSR number assigned to your request at the time you issue the KEEP command. For example:

```
-? fin t ballots network
-NONE IN MRC
-NONE IN REF
-NONE IN CDF
-NONE IN IPF
-? keep
-Entry processed.
-BSSR = 28121
-?
```

---

*Use the SHOW SEARCH command if you want to verify the current form of your search.

VIII. SEARCHING cont.

LSI may be added to the standing search request so that when the notification of a matched or purged standing search request is received in your library, the material may be found on the holding shelves by the LSI. This version of the command might look like "keep 6 LSI 1234567". In this form of the command, the number of months the search is to be retained must precede the LSI.

All the records in the SSR File are searched against the MRC File once a month. If you have typed nothing more than "keep", your request will be kept in the SSR File for three months. If you type a number after "keep"--e.g., "keep 6"--this indicates an alternate number of months for retaining the search. The number of months possible for retaining the search is 0 to 18 months. "Keep 0" results in the search being run against the file exactly once before it is purged. "Keep 1" causes the seach request to be retained for one month exactly, which may result in its being run against the file twice.

Whenever a standing search request is matched against a MRC File record, the system prints a Matched Standing Search Request Notice (see Figure 4 in Section XIV). For one to five records found that match a standing search request, the system prints a Matched SSR Notice for each, containing the full MRC record. For six or more records, the system prints only the L. C. Card Number (CARD), Country of Publication (CP), Language (L), Record Type (REC), and Descriptive Cataloging Form Code (DCF) for each. Matched SSR Notices are mailed to you once a month.

Standing search requests are removed automatically ("purged") from the SSR File when (1) a match against a single MARC record is made or (2) when the time limit for the search request has expired. In the latter case, the system prints out a Purged Standing Search Request Notice (see Figure 5 in Section XIV).

When a match against more than one MRC record is made, you are notified with Matched SSR Notices, but the request is not removed from the SSR File. When you determine that the record you want has been found, or if you want to remove the search and reestablish it in a more precise form, you should purge the old request from the file yourself by issuing the REMOVE command with the SSR number. For example,

```
-? rem ssr 28121
28121 REMOVED.
-?
```

Several SSR numbers can be input at once, separated by commas; for example, "rem ssr 4286, 289, 705". When a standing search request is purged from the SSR File by a REMOVE command, the system does not print a Purged Standing Search Request Notice. You may choose to remove a standing search request at any time, not necessarily only when records have been found that match it. Only the library that input a record can remove it. If another user attempts this, the system will respond to a REM SSR <SSR number> command with "<SSR number> NOT REMOVED, WRONG LIBRARY." Purged SSR Notices are mailed along with any Matched SSR Notices each month.

Note: the SSR File, unlike the MRC File, REF File, CDF, IPF, and the Print Data Queue, cannot be searched on-line. Once you have established a standing search request record, although you can remove it from the SSR File, you cannot have it displayed at your terminal.

IX. COMMANDS

The BALLOTS network commands are precisely defined command words, including format names (e.g., LONG), that allow a user to communicate unambiguously with the BALLOTS system and direct its actions.

When BALLOTS is ready to accept a command, the system will display the prompt "-?". Commands input by the user may be in upper or lower case or in any combination of cases. All of the commands shown below except NOLOG and LOGOFF may be abbreviated to the first three characters. The command to see data on a particular format is simply the identification for that format (e.g., LONG, FULL). A format name may also be abbreviated to the first three letters.

It is possible for the experienced BALLOTS user to use "command chaining." That is, a user may issue several commands at one time, separated from one another by a slash (/). The chain must represent a valid sequence of commands. (You cannot end a chain of commands to create a record without including an ENTER or CANCEL command.) BALLOTS obeys each of the commands in the chain in turn, unless it encounters an invalid or garbled command, or an invalid sequence of commands. At this point the chain is broken and the remaining commands are not carried out or retained. An example of command chaining would be:

```
SET DISPLAY LONG/FIND AUTHOR LOGAN/DISPLAY
```

This example is three commands separated by slashes. The system will first prepare to display any search results in the LONG data display format. It will next search the files to find a record by the author Logan. If one record is found that matches a search request, the system displays it automatically; if several records are found the system usually displays only the number found, in case the user wants to narrow or broaden the search criteria in order to get a different result. In this example, however, the system will immediately act on the third command given in the chain, and will display the first record retrieved without further prompting. Since the system performs all three commands before prompting the user again, the user has saved time and made more efficient use of computer resources by command chaining.

Following is an alphabetical list of the BALLOTS network commands and a discussion of how each one is interpreted by the BALLOTS programs. Each heading includes the valid abbreviation for the command, if there is one. The commands +, -, +B, and -B are described under the heading "Paging Commands."

IX. COMMANDS cont.

Some commands are valid in all three functions, INQUIRY, SEARCH, and NETWORK. Others are valid only in the SEARCH and NETWORK functions, and others are valid only in the NETWORK function. Each command description contains an indication in the heading of the functions in which it may be used.

Commands Following

BACKUP
CANCEL
COLLECT
CREATE
DELETE
DISPLAY
ENTER
EXAMINE
EXIT
FIND
Format Calls
INSERT
KEEP
LOGOFF
MODIFY
NUMBER
Paging
RECOVER
REMOVE
RESUME
TO

SET - FUNCTION
OID
FILES
DISPLAY
LOG/NOLOG
CRT
CARRIAGE
LENGTH
LIST/NOLIST
ELEMENT
COMM/NOCOMM
TABS
DEMO/NODEMO
KEYWORD

SHOW - LINES
ACCOUNT
FILES
TIME
RECORD
USERS
FUNCTION
OID
DISPLAY or FORMAT
LOG
CRT
TERMINAL
LENGTH
LI or LIBRARY
TABS
SEARCH

Command: BACKUP
Short Form: BAC
Functions: All

DESCRIPTION

The BACKUP command is valid only when you have modified a search request. It has the effect of removing the last modification made to a search request. Since at any one time the system retains only the immediately preceding search result, BACKUP is not valid more than once in succession. If you reduce your search results to zero in modifying the search request, the BALLOTS system issues a message stating this and automatically backs up to the previous search result, without waiting for a command from you.

For example:

```
-? fin t number theory
-RESULT:      54 BOOKS IN MRC
-? and author knuth, d
-RESULT:       3 BOOKS IN MRC
-? backup
-RESULT:      54 BOOKS IN MRC
```

It is not possible to BACKUP across a RESUME; that is, to backup from search results from one file to the results from a file searched previously. See the RESUME command.

Command: CANCEL
Short Form: CAN
Functions: NETWORK

DESCRIPTION

CANCEL is one of the two commands that can terminate record creation or modification in the NETWORK function. (The other command is ENTER. It is impossible for the user to finish creating or modifying a record without using one of these commands.) If the CANCEL command is used, the record is not processed; it is not added to the deferred queue. No output is produced. The effect of this command is to wipe out any activity against this record carried out in the input/update mode.

Command: COLLECT
Short Form: COL, C
Functions: NETWORK

DESCRIPTION

One uses the COLLECT command to add more lines of data to those already displayed on an input format in the NETWORK function. You may give this command in either of two short versions. (1) You can key "col", the three-letter abbreviation of the command verb. (2) You can further shorten this to "c". You may collect additional lines of data at the end of the data already displayed, or between the lines of existing data. To collect lines at the end of existing lines, simply key "col". To collect lines between existing lines, for instance between lines 3 and 4, you can type

```
-? col 3.1
```

This gives you lines 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, and 3.9 to work with, prompted one line at a time. If this is not enough space for the data you want to add, you can type

```
-? col 3.01
```

This gives you from line 3.01 through line 3.99 (or through line 3.09 if you have already inserted line 3.1, which is the same as 3.10) for keying data. If you need still more space, or if at a later time you want to come back to this added data and insert more, you can type

```
-? col 3.001
```

You cannot extend the capacity for adding lines beyond the third decimal place. To get more lines, you may first use the NUMBER command.

Note that the actual line numbers prompted by the system depend on the line numbers that are already present in the format. If you have any doubt about the sequence of the lines you have collected, use the EXAMINE command to review the entire format or any part of it.

The system will keep supplying additional lines in response to the COLLECT command either until you press the carriage return or BREAK key when a line number has been prompted, or until no more lines can be inserted within the numeric range you have indicated. At this point you will be returned to command mode.

It may be useful to remember that the COLLECT command and the INSERT command work in the same way. There are only two differences: (1) INSERT may be followed by a range of line numbers (e.g., "ins 3-5"), whereas COLLECT may be followed only by one line number; and (2) INSERT may be followed by a data element mnemonic, whereas COLLECT may not. However, "insert 3.1" inserts only line 3.1; "collect 3.1" collects line 3.1 and continues to collect successive lines.

Command: CREATE
Short Form: CRE
Functions: NETWORK

DESCRIPTION

The CREATE command initiates a record creation sequence for inputting bibliographic information on a blank TOP (First Bibliographic Input) format in the NETWORK function. It is used to input a new record when a record for the title you are cataloging does not already exist in BALLOTS on-line files. When TOP has been successfully completed (the other input formats are optional), call number and holdings information must be input on the HOLDINGS (Holdings Input) format. The TOP and the HOLDINGS formats are required in a record creation sequence.

As described in Section XI, "Input Formats", the system prompts some of the mnemonics on the TOP and HOLDINGS formats when you are creating a new record. Use the COLLECT and INSERT commands to add other data elements valid for these formats. After a CREATE command, if you call for any other input formats (ADDED SERIES, BOTTOM, MIDDLE, NOTES, SERIES, SUBJECTS, and TRACINGS), the system will behave as though you had given it a COLLECT command when you call for the format. It will prompt line number 1, and you may proceed to key the necessary data element mnemonics and values.

Command: DELETE
Short Form: DEL
Functions: NETWORK

DESCRIPTION

This command is used to delete a line (or lines) or a data element (or structure) from an input format. The DELETE command can only be used in a build sequence in the NETWORK function.

Examples of the command include:

```
(1)  del tsrt
(2)  del 3
(3)  del sa
(4)  del 3.1-3.4
(5)  del sasu 2
(6)  del sasu
(7)  del 4, 6, 7, 10
```

In example 1, any lines containing the data element TSRT ("Remainder of Title Statement"), its mnemonic, indicators, and value, will be deleted. (See Section XIII, "Data Elements", for explanations of these aspects of data elements.) In example 2, line three of the current format will be deleted. In example 3, all data elements in the SA ("Subject Heading") structure will be deleted. In example 4, lines 3.1 through 3.4 of the current format will be deleted. In example 5, only the second occurrence of the data element SASU ("Topical Subject Heading") will be deleted. In example 6, all occurrences of SASU will be deleted. In example 7, lines 4, 6, 7, and 10 will be deleted. The commas in this form of the DELETE command are optional. A data element or structure mnemonic may not be abbreviated.

The following are additional examples of valid forms of the DELETE command:

```
del sasu, sapn
del sasu sapn
del 3-5, 7-8
del 3-5 7-8
del sasu sapn 3
del 3-last
del 3-l ["l" is a valid abbreviation for "last"]
```

You may not delete the first line of a data element that extends to additional lines without simultaneously deleting all the lines of the data element. You may, however, delete any line other than the first.

Command: DISPLAY
Short Form: DIS
Functions: All

DESCRIPTION

This command is used to display records in a search result stack. (If there is only one record in the result stack, it is automatically displayed, and this command is not necessary.) The DISPLAY command does not throw you out of search mode and it does not affect the results of the current search. The Brief Data Display Format (SHO) has been selected as the default display. The SET DISPLAY <format name> command may be used to override this default display format (see the SET command).

When the DIS command is given, BALLOTS will display one record at a time. After each record (except the last), the system will prompt the command "+B?" To go on to the display of the next record, you need only hit the carriage return key. DIS, followed by CONTINUOUS (this can be shortened to CON), will cause BALLOTS to list all the records in the result stack, one after another, with three blank lines separating records. On CRT terminals, the system will pause briefly between records displayed, to allow time to read them. The system will also pause between frames of a record if the record is too long to be displayed on the CRT screen. If you do not want this pause, or if you are using a hard copy terminal, give the command "set crt 0".

The DIS command may be optionally followed by the number of the record in the result stack. For example, DIS 5 will cause the fifth record in the result stack to be displayed. DIS 1 will cause the first record in a result stack to be displayed.

If DISPLAY is followed by a number, the number may also be followed by FOR, FORWARD, or F, or REV, REVERSE, or R to set the direction of the display of the records in the search result. "dis 5 for" tells the system to display record 5 and then continue displaying the remaining records in the result stack. "dis 5 rev" instructs the system to display record 5 and then back up, displaying records 4, 3, 2, and 1 in turn. In the latter case, the system will prompt "-B?" after each record except the first record in the stack.

With any of the options described above, a display format name may be used as a display command instead of the word DISPLAY. This overrides the current default display with the format named until the next command is given. Valid display format names are:

FULL (or FUL)
LONG (or LON)
PARTIAL (or PAR)
SHORT (or SHO)
REFERENCE (or REF; valid for reference records only)

Use of the DISPLAY command is shown in the sample searching and cataloging session given in Section XII, "Input Procedures".

Command: ENTER
Short Form: ENT
Functions: NETWORK

DESCRIPTION

ENTER is one of the two commands that can terminate record creation or modification in the NETWORK function. (The other command is CANCEL. It is impossible for the user to finish creating or modifying a record without using one of these commands.) The effect of the ENTER command is to create a new or updated deferred queue (PDQ) record for the library performing this processing. As a result of the ENTER command, printed or magnetic tape outputs are usually produced.

In response to a valid ENTER command, the system returns a unique deferred queue record I. D. number--called the PDQ ("print data queue") number. To retrieve a record from the deferred queue later and update or remove it (see the RECOVER and REMOVE commands), you identify it by the PDQ number. Only the library that enters a record in the deferred queue may later update or remove that deferred queue record.

Command: EXAMINE
Short Form: EXA
Functions: NETWORK

DESCRIPTION

The EXAMINE command is used to see the current input format, from the beginning, as it has been modified during user processing in the NETWORK function. To do this, you can simply type "exa".

EXAMINE may also be followed by a line number or a range of line numbers to display a portion of the current input format. EXAMINE may also be followed by a data element mnemonic. For example:

```
(1)  exa tsrt
(2)  exa 3
(3)  exa sa
(4)  exa 3.1-3.4
(5)  exa sasu 2
(6)  exa sasu
(7)  exa 4, 6, 7, 10
```

In example 1, any lines containing the data element TSRT ("Remainder of Title Statement"), its mnemonic, indicators, and value, will be displayed. In example 2, line 3 will be displayed. In example 3, all the data elements in the SA ("Subject Heading") structure will be displayed. In example 4, lines 3.1 through 3.4 will be displayed. In example 5, only the second occurrence of SASU will be displayed. In example 6, all occurrences of SASU ("Topical Subject Heading") will be displayed. In example 7, lines 4, 6, 7, and 10 will be displayed.

The following are additional examples of valid forms of the EXAMINE command:

```
exa sasu, sapn
exa sasu sapn
exa 3-5, 7-8
exa 3-5 7-8
exa sasu sapn 3
exa 3-last
exa 3-1
```

If the number of lines to be displayed is greater than the number available on the face of the CRT screen, the system will break the listing at the end of the first frame and prompt "+?". If you wish to go on listing the format, push the carriage return key. Or you may give other commands valid in record creation or modification at this point.

Command: EXIT
Short Form: EXI
Functions: All

DESCRIPTION

The EXIT command terminates your current session with BALLOTS and returns you to WYLBUR processing. WYLBUR is the interactive text-editing system of the Stanford University IBM 370/168 computer, on which BALLOTS programs are run. In WYLBUR, you may LOGOFF or return to searching by reissuing the command "call ballots". EXIT may not be keyed during record creation or modification. CANCEL or ENTER are the only commands that terminate such activity. See also LOGOFF.

Command: FIND
Short Form: FIN
Functions: All

DESCRIPTION

The FIND command initiates a search of BALLOTS files.

A search request is composed of the command FIND followed by the name of at least one index and at least one value for that index. The MRC File indexes are personal name (PN or A or AUTHOR), corporate/conference name (CN), title word (T or TITLE or WORD), and LC card number (CARD or CRD). The IPF indexes are personal name, corporate/conference name, title word, LC card number, and I. D. number (ID). The CDF indexes are the same as the IPF but with the addition of a subject (S, SUBJ, or SUBJECT) index and a call number (CAL or CALL#) index. The REF File indexes are personal name, corporate/conference name, title word, I.D. number, and subject. The index name is optional when searching the I.D. number index. The FIND command may not be used to retrieve a Print Data Queue record; the RECOVER command must be used for this.

See Section VIII, "Searching Procedures".

Command: Format Call
Short Form: [Shortened Name of Format]
Functions: All

DESCRIPTION

The format call command consists of a display or input format identification mnemonic (e.g., LONG).

A display format name (see Section X, "Display Formats") may be followed by the number of a record in the result stack if there is more than one record (e.g., FULL 7). If there is only one record in the result stack, the record number is unnecessary. If there is more than one record, the format name without a number causes the record just displayed to be redisplayed on the new format named.

An input format name (see Section XI, "Input Formats"), when chained with a FIND or DISPLAY command, will put you in input/update mode with the record specified in the FIND or DISPLAY command. For example, "FIND CRD 7273/TOP" will give you record 7273 on the TOP format, and the system will be prepared for you to modify the record.

It is not possible to chain through an input format call. That is, the input format call must be the last command in any command chain it is part of.

Note that some data elements appear on two input formats. The system will not allow you to process a second input format that repeats data elements you have already been presented with. For example, NG (General Notes) appears on the NOTES input format and on the MIDDLE input format. If you have used the NOTES format, a subsequent call for the MIDDLE input format will produce an error message.

See also the DISPLAY command.

Command: INSERT
Short Form: INS
Functions: NETWORK

DESCRIPTION

The INSERT command directs the system to insert a line or a data element in an input format in the NETWORK function.

For example, keying "ins 3.1" specifies that you want to insert a line numbered 3.1 in the current format. BALLOTS responds with the line number and expects you to fill in the contents of the line. BALLOTS will not allow you to insert a line that has the same number as an existing line in the format. If you attempt to do this, the system will return an error message indicating that the line number is invalid. "ins oapn" would cause the system to prompt you with an available line number and the mnemonic named in your INSERT command. You would then supply the value for the data element "Other Added Entry-Personal Name". (The actual line number that is prompted depends on the current contents of the format, respecting both line numbers and data elements.)

Additional examples of the INSERT command and their effects are:

ins sasu 2 - inserts a second occurrence of SASU.
ins 3.1-3.4 - inserts lines 3.1, 3.2, 3.3, and 3.4.
ins 3.5-last - inserts lines beginning with line 3.5 and continuing until the possible forward range is exhausted. For example, if line 3.9 already exists, the line numbers 3.5, 3.6, 3.7, and 3.8 will be prompted. You will then be returned to command mode.
ins 3, 5.1 - inserts line 3 and line 5.1. The comma is optional.

Command: KEEP
Short Form: KEE
Functions: SEARCH, NETWORK

DESCRIPTION

The effect of this command is to take the current form of the search request and the user's initials (data element OID--"Operator I.D.") and build a record for the Standing Search Request File (SSR). Records in the SSR File are searched against the MRC File once a month.

The record will be kept in the SSR File for a designated period unless it is successfully matched before that time.

Three months is the default number of months. A number after the command indicates an alternate number of months for retaining the search. For example, KEE 6 will cause the standing search to be retained for six months. The number of months possible for retaining the search is 0 to 18 months. "Keep 0" results in the search being run against the file exactly once before it is purged. "Keep 1" causes the search request to be retained for one month exactly, which may result in its being run against the file twice.

LSI ("Local System Identification Number") may be added to the search request so that when the notification of a matched or purged SSR is received in the library, the material may be found on the holding shelves by the LSI. This version of the command might look like "kee 6 LSI 1234567". In this form of the command, the number of months the search is to be retained must precede the LSI.

The SSR number is returned to the user at the terminal. It may be used to remove a record from the SSR File. See the REMOVE command.

Command: LOGOFF
Short Form: [None]
Functions: All

DESCRIPTION

The LOGOFF command terminates your current session with BALLOTS and with the computer. LOGOFF may not be abbreviated.

LOGOFF is not valid during record modification or creation. If the command is given in this situation, the system will reply "NOT VALID IN BUILD". CANCEL or ENTER are the only commands that terminate such a sequence. To LOGOFF from record modification or creation, you must first either ENTER or CANCEL the sequence before issuing the LOGOFF command.

At the completion of the session, you receive statistics on elapsed time, editing time, input/output activity, etc. If the TYMNET communications system connects you to the host computer at Stanford, it will then remain logged on for two minutes unless you have removed the telephone from the acoustic coupler. After two minutes TYMNET will terminate the communications session unless you start to log on again (see Section IV, "Logging On").

Command: MODIFY
Short Form: MOD
Functions: NETWORK

DESCRIPTION

The MODIFY command is used to make corrections to a line in an input format or to a specific data element in the NETWORK function.

Sample uses of this command are:

```
mod tsrt
mod 3
mod 3.1-3.4
mod sasu 2
mod sasu
mod 4, 6, 7, 10
```

"mod 3" will cause the system to display line 3 of the current format and to prompt for alterations ("ALTERS?") in a blank line under line 3. After you have made changes to the line, BALLOTS will respond by typing the altered line and will then issue another prompt for alterations. If the line has been modified correctly, you should press the carriage return; this signals that the modifying procedure is complete, and the system will return you to normal command mode ("-?").

For example:

```
-? mod 3
   3.     MEPN      Charles, Richard W., 1937-
ALTERS?                               diarren
   3.     MEPN      Charles, Richard Warren, 1937-
ALTERS? <carriage return>
-?
```

The MODIFY command may be followed by a data element mnemonic. For example, "mod oapn" will cause the system to display the Other Added Entry-Personal Name data element and to prompt for alterations as explained above. If the data element extends to several lines, each line will be prompted in turn. If the data element occurs more than once, all the occurrences will be prompted. To modify, for example, the second occurrence of OAPN, give the command "mod oapn 2".

You may also modify a range of lines (e.g., "mod 3-8") or a series of lines ("mod 1, 3, 5"); BALLOTS will prompt successive lines in the range until the range is exhausted.

The characters used to signal line modifications to the system are "d" for deletions; "i" for insertions; and "r" for character replacements. If you do not receive the expected result to your line modification, doublecheck your use of these

Command: MODIFY
Short Form: MOD
Functions: NETWORK

DESCRIPTION Cont.

modification characters (explanations of their use follow). The system will follow your modification instructions quite literally.

A "d" is used to remove characters from the line being modified. Each character under which a "d" is typed will be removed and the space it occupied will be closed. Two "d" characters will cause the two characters under which the "d"'s are placed, plus any characters in between, to be deleted. If one keys a "d" and follows it with any blank spaces hit on the space bar, those column positions will also be deleted. For example:

```
mod 3
  3.  MEPN      abcdefghijkl
ALTERS?         ddd   ixyz
  3.  MEPN      xyzghijkl
ALTERS?
```

You may insert new characters into the line by first typing an "i" underneath the character before which the insertion is to be made and following this with the character string to be inserted.

You may replace a character string in the line by typing an "r" under the first character to be replaced and following this with a string of characters that are the replacements. Starting with the character under which you type "r", the system will replace as many characters in the line as you key in. Using the "r" modifier therefore restricts you to replacing a number of characters with the same number of characters. If you want to do a replacement with a different number of characters, you may use a combination of the "d" modifiers followed by the "i" modifier.

Note that you may make only one alteration per "ALTERS?" prompt, with the exception of a deletion immediately followed by an insertion or replacement modifier.

```
-? mod 3
     3.     TST   10  This is an example title.
                               d  di s
   ALTERS?
     3.     TST   10  This is a sample title.
```

BALLOTS always types out the modified image of the line after a user has specified an alteration. This repetition may be averted by typing an "n" before giving any alteration modifiers. The position of the "n" is of no concern to BALLOTS as long as it appears before any other characters on the alteration line.

Command: MODIFY
Short Form: MOD
Functions: NETWORK

DESCRIPTION cont.

You can cause the system to continue displaying the same line and prompting for alterations by hitting the space bar when you are prompted "ALTERS?" and then pressing the carriage return. The system will then redisplay the line and again prompt "ALTERS?". This may be helpful on non-scrolling video terminals--that is, if you find yourself with a line to be modified displayed at the bottom of the screen and the "ALTERS?" prompt displayed at the top. By prolonging the repetition of prompts, you can force the line to be modified and the alteration line both to the top of the screen.

You may suppress the "ALTERS?" prompt after a modification and thus reduce the time taken in modifying a line by keying the commercial at sign (@) followed by the BREAK key immediately after typing your alteration.* (This will appear on the screen as "@***".) Do not press the carriage return key in this case. The modified line is redisplayed by the system, but the next "ALTERS?" prompt is suppressed. The sequence dollar sign - BREAK (which will appear as "$***") not only suppresses the next "ALTERS?" prompt, but also ends the current modification command involving any other lines. Note that in both cases the modifications are retained. Pressing the BREAK key alone at the end of an alteration or in response to an "ALTERS?" prompt has the effect of throwing away the just-made modification.

If modifying the data element value means running over the line length (either the default length set by the system or a length given by you in the SET LENGTH command), the system will automatically break the line at the length currently set and push the remainder of the data onto a new inserted line. It will prompt this new line for further modification. On completion of the modification, the system will rearrange the lines so that they break on a space between two words. Note that the line length includes the space needed for the line number, the mnemonic, and the indicators, as well as the data itself. The system will only do this automatic rearrangement if data has been inserted. It will not do it if data has been deleted.

NOTE: If a single line is expanded beyond 256 characters by a single MODIFY command, an error will result.

---

*This key's name varies depending on the kind of terminal being used, but all terminals are equipped with such a key. On the Zentec terminal used by the PLAN libraries, the BREAK key is the blue function key number four in TTY-HD mode.

Command: NUMBER
Short Form: NUM
Functions: NETWORK

DESCRIPTION

The NUMBER command is used on an input format in the NETWORK function to renumber all the lines of the format when a line number is not available for inserting a needed line. This command reassigns integer numbers to each line. For example, if after modification the line numbers of your input format are:

```
1.
1.001
1.01
1.1
1.2
2.
3.
```

and you want to insert a line between line 1. and line 1.001, since the system cannot provide four decimal places, you must give the NUMBER command. The resulting line numbers will be:

```
1.
2.
3.
4.
5.
6.
7.
```

Then line 1.1, for example, may be inserted.

The system will say "RENUMBERING COMPLETED" after it has executed the NUMBER command.

If the system must create a new line for data that has overflowed its original line, or for continuation lines in an INSERT or MODIFY command, and if no line number is available, it will do an automatic NUMBER of the input format. The "RENUMBERING COMPLETED" message will appear indicating that the lines have been renumbered.

Command: Paging Commands
Short Form: [Not Applicable]
Functions: All

DESCRIPTION

The +, -, +B, -B commands are available on display formats. The + command is also available on input formats.

The + command is used to advance to the next frame when a single record is too long to be displayed in one screen on a CRT terminal. If a record is only one frame long, or if the last frame of that record is currently being displayed, the + command is inoperable. The + command is also used after the EXAMINE command if that command produces more than one screen full of data.

The - command is the opposite of the + command. It is used to back up to the previous frame of a record on a CRT terminal. You must first have issued a + command in order to be in a position to enter a - command. If a record is only one frame long, or if the first frame of a multiframe record is currently being displayed, the - command is inoperable. The - command will not page back to a frame in a previous record in a result stack. The -B command must be used for that. The - command may not be used with the FULL format or with any input formats.

The + and - commands are needed only on CRT terminals where records may be too long to display at one time on the CRT screen. They can be used on hard copy terminals if the SET CRT command has been given to set a frame size other than zero.

The +B command is used to page ahead to the first frame of the next record in the search results. It will jump over any remaining undisplayed frames of the current record. If there are no succeeding records, the +B command is inoperable.

The -B command is used to page back to the previous bibliographic record in search results. That is, it will page back to the first frame of the previous record. It will jump over any previous frames for the current record, and will also jump over any trailing frames for the previous record. If there are no previous records, the -B command is inoperable.

Note that the +, -, +B, and -B commands may only be used if the system's last action was to display a format. If you have issued any other command following a display, the paging commands won't work.

Command: RECOVER
Short Form: REC
Functions: NETWORK

DESCRIPTION

The RECOVER command is used with a record number in the NETWORK function to retrieve a Print Data Queue record in order to update or display it. Note that a PDQ record may be updated only on the same day that it was originally entered. Only the library that input the record may recover it.

For example:

```
rec pdq 1473
rec 1473
```

Command: REMOVE
Short Form: REM
Functions: REM SSR - SEARCH, NETWORK
REM PDQ - NETWORK

DESCRIPTION

The REMOVE command is used (1) in the SEARCH or NETWORK function to delete a record from the Standing Search Request file (BSSR) or (2) in the NETWORK function to delete a record from the Print Data Queue. The command must be followed by SSR <SSR number> or PDQ <PDQ number>. Several SSR or PDQ numbers can be input, separated by commas; for example, "rem ssr 4286, 289, 705"; "rem pdq 19, 22, 35". The numbers are the Standing Search Request identification numbers, assigned at the time the KEEP command is processed, or the record numbers issued when the ENTER command was processed. SSR and PDQ numbers must not be mixed in the same REMOVE command.

Note that standing search requests are removed automatically when (1) a match against a single MARC record is made or (2) when the time limit for the search request has expired. It is only necessary to use the REMOVE SSR command if you no longer wish the search request to be processed and if neither of the two conditions above has arisen.

Only the library that input a record can remove it. If another user attempts this, the system will respond to a REM PDQ <PDQ number> command with "-NONE IN PDQ", and to a REM SSR <SSR number> command with "<SSR number> NOT REMOVED, WRONG LIBRARY."

Command: RESUME
Short Form: RES
Functions: All

DESCRIPTION

A search request may, by command or by default, involve a search of one or more files. When several files are involved, each file is searched in turn. If no result is found in a given file, the search automatically passes to the next file in the sequence. If a result is found, the search is interrupted and the search result shown to the user. The RESUME command causes the search inquiry to be passed against the next file in the sequence. For example:

```
-? fin a martin, richard
-NONE IN MRC.
-NONE IN REF.
-RESULT:  3 BOOKS IN CDF
-? resume
-RESULT:  1 BOOK IN IPF
```

RESUME is valid after the search results are displayed or during the display of any records on a display format. If the user has only one file set or is on the last file in the sequence, RESUME is not valid. It is not possible to chain through a RESUME command. That is, RESUME must be the last command in any command chain.

Command: SET
Short Form: [None]
Functions: All

DESCRIPTION

The SET command is used to establish

(1) the function (INQUIRY or SEARCH or NETWORK)
(2) the terminal operator identification (OID)
(3) the files to be searched
(4) the format to be displayed by the DISPLAY command
(5) whether a system log of this session is to be created
(6) whether the terminal being used is a CRT and what the frame size (number of lines per CRT screen) is
(7) the physical line length of the terminal
(8) the desired length of the display and/or input format line
(9) whether the input format given in the format call command is to be displayed or not
(10) the elements to be displayed for records in a result stack
(11) whether the user wants to receive messages from another user
(12) the tabs
(13) whether the user is working in production or demonstration mode

In all forms of the SET command, the word "set" is optional (see examples below).

1. SET FUNCTION. There are three functions: INQUIRY, SEARCH, and NETWORK. Users that are permitted to use either the SEARCH or NETWORK function (or both) must set function. Users that are only permitted to search the BALLOTS files are automatically given the INQUIRY function as a default, and need not set it. The account used in the log-on procedure is used to set the function by default and to validate a SET FUNCTION command. Examples of valid SET FUNCTION commands include:

```
SET FUNCTION NETWORK
SET FUN SEA
SET FUN = NET
SET FUN SEARCH
SET FUNCTION = NET
SET FUNCTION = INQUIRY
SET FUN = INQ
FUN = NET
FUN NET
```

Command: SET
Short Form: [None]
Functions: All

DESCRIPTION Cont.

2. SET OID. When you log on to the system, the system sets the operator identification (OID) using the first three letters of the name you give in response to the "NAME?" prompt. You may reset this identification using the SET command in the form:

```
SET OID <user's initials>
```

A maximum of three letters is used in the OID. Since OID prints on matched SSRs and purged SSRs, you may wish to set it to your own initials in order to identify these outputs when they are received by your library. When the SET OID command is given, the system message "PLEASE SET LOG" appears. See number 5 below.

3. SET FILE. The files that can be searched by their generic names are the MARC File (MRC), the In Process File (IPF), the Reference File (REF), and the Catalog Data File (CDF). Additionally, you can indicate specific libraries' files to be searched by prefixing the the FLI (File Library Identifier) to the generic file name (see the BALLOTS Data Elements Notebook for these). The MRC File does not have a FLI qualifier, since it is common to all BALLOTS network libraries. The function dictates which files are to be searched and in what order. However, you can override the default files with a SET FILE command. The sequence in which you then specify files is the one in which the file will be searched. The default sequence of files in the NETWORK and SEARCH functions are: MRC, REF, CDF, IPF. Examples of valid SET FILE commands are:

```
SET FILE MRC
SET FIL MRC, IPF
SET FIL IPF
SET FILE M-IPF
SET FIL S-IPF
SET FILES M-IPF S-CDF
SET FIL MIPF, MCDF
SET FILE SIPF
```

4. SET DISPLAY. Any display format except REFERENCE can be specified in the SET DISPLAY command for use to display all records subsequently found.

```
SET DISPLAY = FULL
SET DIS LONG
```

Command: SET
Short Form: [None]
Functions: All

DESCRIPTION Cont.

Remember that the REF display format can only be used with records from the Reference File. The REF format is automatically used for all records from the REF File, regardless of the display set or requested. Except for the REF File, the default display in all functions is SHORT.

5. SET LOG/NOLOG. The system logging procedure, which creates a record of the BALLOTS commands issued at each terminal, may be activated through the SET LOG command. If the logging procedure has been activated, it may be deactivated through the SET NOLOG command. NOLOG may not be abbreviated.

The reason for logging a terminal session is that the logs make it possible to track down system bugs. Common errors can sometimes be identified and corrected from scanning the logs. On occasion, the log is used to gather statistics about system use. The log is confidential; for the most part it is not printed out or retained.

6. SET CRT. If the terminal being used is a CRT terminal that does not have a 24-line display, this must be indicated by showing the number of lines available on the device. Examples of valid forms of this command are:

```
SET CRT 24
SET CRT 12
```

To indicate that you are using a hard copy terminal rather than a CRT, give the command

```
SET CRT 0
```

If you are using a CRT terminal - hard copy printer combination with the printer turned on, you might want to "set crt 0", because you will have printed copy for reference.

7. SET CARRIAGE. Terminals vary in their maximum physical line length. In order to format data correctly, BALLOTS must know this maximum length for line mode terminals. This length is indicated by the SET CARRIAGE <length> or SET CAR <length> command. SET CARRIAGE 80 is the default for all network libraries. This command defines the limits of your terminal and should not be used to change display line length. NOTE: If the terminal does not automatically do a carriage return at the end of a line, you can make it do so by setting carriage to a number greater than your terminal's actual line length.

Command: SET
Short Form: [None]
Functions: All

DESCRIPTION Cont.

8. SET LENGTH. The SET LENGTH command is used to indicate the width in number of characters desired for the display of data. For example, if the terminal prints at 10 characters to the inch, and if a 5-inch-wide display is desired, use the command "set length 50".

When a line of data is longer than the length set, the system will "wrap" the line around to an overflow line just below, in order to display the entire string of characters. The system always breaks a line on a blank space in order to continue it on the next line.

This command also governs the line length for input formats in the NETWORK function and the Full Bibliographic Display format in all functions. If different line lengths are desired for display and for input, give the display length first, followed by a comma and the input length. Both numbers must be less than or equal to the number given in a SET CARRIAGE command and less than or equal to the physical line length. For example,

```
SET LEN 50,75
```

If a different input length is desired, use a command like "set length ,50". If both input and display lengths are to be changed to the same non-default value, give a command like "set length 50,50".

The default line length for both display and input is 79 characters.

9. SET LIST/NOLIST. You may specify SET LIST or SET NOLIST in the NETWORK function. After the SET LIST command, when an input format is called, the data in the requested format will be listed; after the SET NOLIST command, no data will be listed. (When you alter any data on the format, the resulting changed format will be displayed.) LIST is the default setting. Valid abbreviations are LIS and NOL. This is the only form of the SET command that is valid when creating or modifying a record.

10. SET ELEMENT. You may override the default or set display format by specifying particular data elements to be displayed. For example:

```
SET ELEMENT D, SA
SET ELE TS, SN
ELE ME TST
```

Command: SET
Short Form: [None]
Functions: All

DESCRIPTION Cont.

The maximum number of data elements you can name in one SET ELEMENT command is twenty. These twenty names may be of data elements or structures. If a structure is specified, all values for data elements in that structure are displayed (e.g., TS will display all data elements in the structure TS--TSRT, TSSB, TST, and TSUT). The display of data elements is a modification of the FULL display format. To see again the complete list of elements on the FULL format, give the command SET ELEMENT with no mnemonics following. The SET ELEMENT command has the effect of setting the display format for all records to FULL. To change this, use the SET DISPLAY command (see number 4 above). By setting function, the default display format is restored.

11. SET COMM/NOCOMM. You can turn off the facility that allows other users to send you messages by issuing the command "set nocomm". A terminal attempting to send a message to a terminal that has SET NOCOMM will receive a message that the terminal is not accepting messages.

If you want to receive messages sent from other terminals, issue the command "set comm". The default option at log-on is SET COMM. Messages "broadcast" to all terminals by the computer console operator are not inhibited by the SET NOCOMM command.

12. SET TABS. Setting tabs makes the typing of input and update data more efficient. Once you have typed "set tabs", the system will ask: "TERMINAL?" Type "zentec" or "z" if you are working at a Zentec terminal. Type "gencom" or "g" if you are working at a Gen-Com typewriter terminal. Tabs cannot be automatically set within BALLOTS on any other kinds of terminals. On a Zentec terminal the screen will then go blank. You will then see (on either a Zentec or a Gen-Com):

```
VERIFY          1   1
VERIFY          1   1
TABS INITIALIZED.
```

The first tab setting is at the beginning of the indicator input area. The second tab setting is at the beginning of the data input area. On the TOP input format following a CREATE command and on the HOLD input format, and in response to an "insert <mnemonic>" command, the system will tab to the appropriate input area, whether you have set tabs or not.

Command: SET
Short Form: [None]
Functions: All

DESCRIPTION Cont.

13. SET DEMO/NODEMO. The command SET DEMO places your terminal in "demonstration mode". In this mode, none of the records you enter in the NETWORK function will be processed by the system; none of them will be output on magnetic tape. This mode is useful for demonstrations of the system or for training. NOTE: in demonstration mode the KEEP and REMOVE commands are not valid. The command SET NODEMO returns the terminal to normal production mode.

14. SET KEYWORD. Keywords for new accounts are set by the BALLOTS Center. It is advisable to change the keyword monthly. To change the keyword, follow this sequence after logging on with the old keyword:

```
-? set keyword
ACCOUNT? XXXX
OLD KEYWORD? XXX
NEW KEYWORD? XXX
```

You key in your account number and old and new keywords over the mask of characters provided by the system to make them invisible to others looking at your work.

Keywords may be set to any three characters, except for the following special characters:

,	(comma)
	(blank)
-	(dash)
'	(apostrophe or single quote)
(	(left parenthesis)
)	(right parenthesis)
"	(double quote)
/	(slash)
.	(period)
=	(equal sign)

* * *

In summary, various forms of the SET command are used to override default settings that are assumed by the system when the user enters BALLOTS. These default settings are:

2. operator identification: first three letters of NAME given during log-on sequence
3. files: MRC, REF, CDF, IPF

Command: SET
Short Form: [None]
Functions: All

DESCRIPTION Cont.

4. display format: SHORT for all except reference records
5. system log: NOLOG
6 terminal type: CRT; 24 lines
7. carriage width: 80
8. length: 79, 79
9. listing of input format: LIST
10. elements: FULL data display format contents are the default range of elements provided
11. messages: COMM
12. tabs: not set
13. demonstration mode: not set
14. keyword: the value last set by the user or by the BALLOTS Center.

Command: SHOW
Short Form: SHO
Functions: All

DESCRIPTION

The SHOW or SHO command is valid both when searching and when modifying or creating a record. It is used to indicate the value of various parameters currently in effect in the BALLOTS system. All the options of the SHOW command may be abbreviated to their first three characters.

1. SHOW LINES will list the terminals currently using the IBM 370/168 computer. SHOW LINE will show your terminal line number, I. D., and account number. E.g.,

   ```
   118 (OEO) L09 LAP$BP (WYLBUR) (ORVYL)
   ```

   118 is the line number, L09 the terminal I. D., and LAP$BP the account number in this example.

2. SHOW ACCOUNT or SHO ACC will give the current computer account in use.

3. SHOW FILES will list the files (in their sequence) currently searched when a FIND command is given.

4. SHOW TIME will list the current time in HOURS/MINUTES/SECONDS from midnight, the elapsed time, and other statistics related to the amount of machine resources used.

5. SHOW RECORD will list the number of the record in the result stack that is currently ready for processing; the CARD number of a MRC File record or the Record I.D. of a record from any of the other files is also cited.

6. SHOW USERS will list the initials portion of the accounts under which users are currently logged on to the IBM 370/168 computer.

7. SHOW FUNCTION will give the abbreviation of the function currently set.

8. SHOW OID will give the user's initials currently set.

9. SHOW DISPLAY or SHOW FORMAT will give the default display format currently set.

10. SHOW LOG will show whether the log is set or not.

Command: SHOW
Short Form: SHO
Functions: All

DESCRIPTION Cont.

11. SHOW CRT will show if the terminal is set to a CRT and the number of lines on the screen.

12. SHOW TERMINAL will show the terminal I. D.

13. SHOW LENGTH will show the format line lengths and the carriage width currently set.

14. SHOW LI or SHOW LIBRARY will show the Library Identifier of the library logged on.

15. SHOW TABS will show the tabs currently set, or will indicate that no tabs are set.

16. SHOW SEARCH will show the search command most recently processed by the system.

Command: TO
Short Form: [None]
Functions: All

DESCRIPTION

This command is used to send a message to another terminal by specifying that terminal's line number or terminal I.D. or the initials of the person logged on to the terminal. The name must be enclosed in quotation marks. You can find out the name or number to address by using the SHOW LINES or SHOW USERS command. For example:

```
TO 101 <message> [line number]
TO P30 <message> [terminal I.D.]
TO EAM <message> [name]
TO OP <message> [computer console operator]
```

<message> may be any text. For example:

```
to m32 I don't understand the show search command--?
```

The TO command may be used to communicate with BALLOTS project staff who may be logged on at other terminals; otherwise its use is discouraged.

X. DISPLAY FORMATS

Data from BALLOTS records may be called up at the terminal in a variety of formats in any of the three functions, INQUIRY, SEARCH, and NETWORK. 1. You may select a brief display of basic information -- author, title, imprint, Library of Congress card number, and Stanford identification number. 2. You may select a more complete display of information that contains the main entry, the body of the entry, pagination, series information, International Standard Book Number, Library of Congress card number, Stanford identification number, and information about Stanford's holdings for the title. 3. You may select a display of all the bibliographic data in the record, including notes and tracings, formatted to resemble a catalog card. 4. And you may select a display of the same data formatted as a list of data element mnemonic tags with their associated values. The names of these four display formats are, respectively:

1. SHORT -- Brief Data Display Format
2. PARTIAL -- Partial Data Display Format
3. LONG -- Long Data Display Format
4. FULL -- Full Bibliographic Display Format

As with most BALLOTS commands, the names of these formats may be shortened to their first three characters.

If you do not specify a particular display format, the BALLOTS system will automatically provide you with the SHORT format.

Exception: If the records you have retrieved come from the cross-references (REF) file, they will always be displayed on a REFERENCE display format.

When your search has retrieved more than one record, the system always precedes a record's display with a message that tells you what position the record occupies in the search results stack. For example, "Record 3 of 10" means you are about to see the third record of the ten that were retrieved by your last search.

If you wish to look at a given record in a different format than the one in which it is being displayed, simply reply with the name of the format in response to the system's command prompt (usually "-?" or "+B?"). Or you may call for a specific display of the record by its number in the result stack (see the "DISPLAY" command). For example, "lon 3" will give you the third record in the result stack in the LONG display format.

X. DISPLAY FORMATS cont.

You may also change the system default display format by using the "set" command. (Setting the function automatically sets the display to SHORT.) For example, if you wish to see all your search results on a PARTIAL format, you may key "set display par". From this point on, the system will display all records, except references, in the PARTIAL format. (You may always override this setting with a request for a specific format, or by issuing a new "set display" command.)

You may also limit the display of data to specific data elements by using the "set elements" command. For example, if you wish to see only main entries, you may key "set ele me". From this point on, the display will consist of only the main entries of the records in the result stack, formatted in the manner of the FULL format with a mnemonic tag. Again, this setting may be overridden with a new "set" command or by asking for a specific display.

The following pages show an example of each format, together with the BALLOTS data elements that are displayed on that format if present in the record.

DISPLAY FORMAT CONTENTS

Name: Brief Data Display Format
ID: SHORT

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

MEPN	Main Entry-Personal Name
MECA	Main Entry-Corporate Name
MECF	Main Entry-Conference Name
MET	Main Entry-Title
MEUT	Main Entry-Uniform Title
TST	Title Statement-Short Title
PP	Place and Publisher
D	Date of Publication
CARD	Library of Congress Card Number
ID	Record Identification Number
FLI	File Library Identifier

DISPLAY FORMAT EXAMPLE

Name: Brief Data Display Format
ID: SHORT

```
Spline functions and approximation theory.
  Basel, Stuttgart, Birkhaeuser, 1973.
CRD:73168561      ID:14699S
```

DISPLAY FORMAT CONTENTS

Name: Partial Display Format
ID: PARTIAL

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

MET	Main Entry-Title
TSSB	Title Statement-Subtitle
TSRT	Title Statement-Remainder of Title
ED	Edition
PP	Place and Publisher
D	Date of Publication
MEPN	Main Entry-Personal Name
MECA	Main Entry-Corporate Name
MECF	Main Entry-Conference Name
MEUT	Main Entry-Uniform Title
TSUT	Title Statement-Uniform Title
TST	Title Statement-Short Title
PG	Pagination or Volumes
SNPN	Series Note-Personal Name
SNST	Series Note-Series Title
SNSV	Series Note-Series Volume
SNCA	Series Note-Corporate Name
SNCF	Series Note-Conference Name
SEPN	Series Added Entry-Personal Name
SEST	Series Added Entry-Series Title
SESV	Series Added Entry-Series Volume
SECA	Series Added Entry-Corporate Name
SECF	Series Added Entry-Conference Name
SST	Source and Status of Bibliographic Data
MS	MARC Status
REC	Record Type
RCDM	Record Mask
ISBN	International Standard Book Number
CRD	Library of Congress Card Number
CRDS	Library of Congress Card Number Revision Indicator
ID	Record Identification Number
MDY	Individual Material Description
ACDT	Acquisition Control Code Date
PRO	Type of Procurement [not displayed]
CAL	Call Number (Stanford)
LOC	Permanent Shelving Location
BDY	Individual Bibliographic Descriptor

DISPLAY FORMAT EXAMPLE

Name: Partial Data Display Format
ID: PARTIAL

```
Spline functions and approximation theory.  Proceedings of
  the Symposium held at the University of Alberta, Edmonton,
  May 29 to June 1, 1972. Ed. by A. Meir and A. Sharma.
  Basel, Stuttgart, Birkhaeuser, 1973.
  386 p.    64.00F   (International series of numerical
mathematics, v. 21)   SST:3S   MS:N   REC:am     RCDM:SCDF
ISBN 376430670X
CRD:73168562
ID:14699
CAL:QA224.S65
STK      1
```

DISPLAY FORMAT CONTENTS

Name: Long Data Display Format
ID: LONG

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

MET	Main Entry-Title
TSSB	Title Statement-Subtitle
TSRT	Title Statement-Remainder of Title
ED	Edition
PP	Place and Publisher
D	Date of Publication
MEPN	Main Entry-Personal Name
MECA	Main Entry-Corporate Name
MECF	Main Entry-Conference Name
MEUT	Main Entry-Uniform Title
TSUT	Title Statement-Uniform Title
TST	Title Statement-Short Title
PG	Pagination or Volumes
ILL	Ilustration Statement
SZ	Size
SNPN	Series Note-Personal Name
SNST	Series Note-Series Title
SNSV	Series Note-Series Volume
SNCA	Series Note-Corporate Name
SNCF	Series Note-Conference Name
LPR	Library of Congress Price
NG	Notes-General
NB	Notes-Bibliographic
NP	Notes-Partial Contents
NC	Notes-Contents
NM	Notes-Incomplete Contents
SASU	Subject Added Entry-Topical Subject Heading
SAUT	Subject Added Entry-Uniform Title
SAPN	Subject Added Entry-Personal Name
SAPT	Subject Added Entry-Personal Name/Title
SACA	Subject Added Entry-Corporate Name
SAAT	Subject Added Entry-Corporate Name/Title
SACF	Subject Added Entry-Conference Name
SAFT	Subject Added Entry-Conference Name/Title
OAPN	Other Added Entry-Personal Name
OAPT	Other Added Entry-Personal Name/Title
OACA	Other Added Entry-Corporate Name
OAAT	Other Added Entry-Corporate Name/Title
OACF	Other Added Entry-Conference Name
OAFT	Other Added Entry-Conference Name/Title
OAUT	Other Added Entry-Uniform Title
OATA	Other Added Entry-Added Title

DISPLAY FORMAT CONTENTS

Name: Long Data Display Format
ID: LONG

DATA ELEMENTS LISTED IN ORDER OF DISPLAY (cont.):

SNTI	Series Note-Tracing Indicator
SEPN	Series Added Entry-Personal Name
SEST	Series Added Entry-Series Title
SESV	Series Added Entry-Series Volume
SECA	Series Added Entry-Corporate Name
SECF	Series Added Entry-Conference Name
CARD	LC Card Number (Full Form)
CRD	Library of Congress Card Number [used to generate value for CARD]
CRDS	Library of Congress Card Number Revision Indicator [used to generate value for CARD]
LC	Library of Congress Call Number
LCA	Alternative LC Call Number
DC	Dewey Decimal Classification Number
ISBN	International Standard Book Number
NUC	NUC Card Number
SUP	Superintendent of Documents Number
SST	Source and Status of Bibliographic Data
CP	Country of Publication
L	Language
REC	Record Type
MS	MARC Status
GPC	Government Publication Code
RCDM	Record Mask
ID	Record Identification Number
MDY	Individual Material Description
ACCD	Acquisition Control Code
ACDT	Acquisition Control Code Date
PRO	Type of Procurement [not displayed]
CAL	Call Number (Stanford)
LOC	Permanent Shelving Location
BDY	Individual Bibliographic Descriptor

DISPLAY FORMAT EXAMPLE

Name: Long Data Display Format
ID: LONG

```
Spline functions and approximation theory. Proceedings of
  the Symposium held at the University of Alberta, Edmonton,
  May 29 to June 1, 1972. Ed. by A. Meir and A. Sharma.
  Basel, Stuttgart, Birkhaeuser, 1973.
  386 p.  25 cm.  (International series of numerical
mathematics, v. 21)   64.00F

  1.Spline theory - Congresses.  2.Approximation theory -
Congresses.  I.Meir, A., ed.  II.Sharma, A., ed.  III.SER.
CRD:73-168561
QA224.S65   511/.42  376430670X
SST:3S   CP:sz    L:eng   REC:am       MS:N   RCDM:SCDF
ID:14699
CAL:QA224.S65
STK       1
```

DISPLAY FORMAT CONTENTS

Name: Full Bibliographic Display Format
ID: FULL

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

ID	Record Identification Number
MECA	Main Entry-Corporate Name
MECF	Main Entry-Conference Name
MEPN	Main Entry-Personal Name
MET	Main Entry-Title
MEUT	Main Entry-Uniform Title
TSUT	Title Statement-Uniform Title
TST	Title Statement-Short Title
TSSB	Title Statement-Subtitle
TSRT	Title Statement-Remainder of Title
TSRM	Title Statement-Romanized Title
TSTI	Title Statement-Tracing Indicator [used to generate indicator for TST]
ED	Edition
PP	Place and Publisher
D	Date of Publication
PG	Pagination or Volumes
ILL	Illustration Statement
SZ	Size
REC	Record Type
FIC	Fiction Indicator
INT	Intellectual Level Code
CARD	LC Card Number (Full Form)
CRD	Library of Congress Card Number [used to generate value for CARD]
CRDS	Library of Congress Card Number Revision Indicator [used to generate value for CARD]
SN	Series Note Structure Indicator
SNCA	Series Note-Corporate Name
SNCF	Series Note-Conference Name
SNPN	Series Note-Personal Name
SNST	Series Note-Series Title
SNSV	Series Note-Series Volume
ISSN	International Standard Serial Number
SNTI	Series Note-Tracing Indicator
NG	Notes-General
NB	Notes-Bibliographic

DISPLAY FORMAT CONTENTS

Name: Full Bibliographic Display Format
ID: FULL

DATA ELEMENTS LISTED IN ORDER OF DISPLAY (cont.):

NA	Abstract or Annotation
NBW	"Bound With" Note
ND	Dissertation Note
NC	Notes-Contents
NP	Notes-Partial Contents
NM	Notes-Incomplete Contents
SASU	Subject Added Entry-Topical Subject Heading
SAGN	Subject Added Entry-Geographic Name
SAUT	Subject Added Entry-Uniform Title
SAPN	Subject Added Entry-Personal name
SAPT	Subject Added Entry-Personal Name/Title
SACA	Subject Added Entry-Corporate Name
SAAT	Subject Added Entry-Corporate Name/Title
SACF	Subject Added Entry-Conference Name
SAFT	Subject Added Entry-Conference Name/Title
OAPN	Other Added Entry-Personal Name
OAPT	Other Added Entry-Personal Name/Title
OACA	Other Added Entry-Corporate Name
OAAT	Other Added Entry-Corporate Name/Title
OACF	Other Added Entry-Conference Name
OAFT	Other Added Entry-Conference Name/Title
OAUT	Other Added Entry-Uniform Title
OATA	Other Added Entry-Added Title
SE	Series Added Entry Structure Indicator
SECA	Series Added Entry-Corporate Name
SECF	Series Added Entry-Conference Name
SEPN	Series Added Entry-Personal Name
SEUT	Series Added Entry-Uniform Title
SEST	Series Added Entry-Series Title
SESV	Series Added Entry-Series Volume
CALL	Call Number
BRN	Branch
COP	Copy Information
VOL	Volume Holdings
VARI	Copy Variation
CIO	Copy, Issue, Offprint Statement
LSI	Local System Identification Number
PRI	Price
LDA	Local Data Element A
LDB	Local Data Element B
LDC	Local Data Element C
LDD	Local Data Element D
LDE	Local Data Element E
LDF	Local Data Element F
LDG	Local Data Element G

DISPLAY FORMAT CONTENTS

Name: Full Bibliographic Display Format
ID: FULL

DATA ELEMENTS LISTED IN ORDER OF DISPLAY (cont.):

DC	Dewey Decimal Classification Number
NUC	NUC Card Number
ISBN	International Standard Book Number
L	Language
CP	Country of Publication
SST	Source and Status of Bibliographic Data
LC	Library of Congress Call Number
LCA	Alternative LC Call Number
MS	MARC Status
LPR	Library of Congress Price
RCDM	Record Mask
EL	Encoding Level
MOD	Modified Record Indicator
CON	Form of Content Codes
DCF	Descriptive Cataloging Form Code
FM	Full MARC Indicator
MEI	Main Entry in Body of Entry Indicator
ILC	Illustration Codes
GPC	Government Publication Code
CPI	Conference Publication Indicator
BIO	Biography Code
FSI	Festschrift Indicator
II	Index Indicator
REP	Form of Reproduction Code
CSC	Cataloging Source Code
PD	Type of Publication Date Code, Date 1, Date 2
NAL	NAL Call Number
NLM	NLM Call Number
SUP	Superintendent of Documents Number
NBN	National Bibliography Number
OAN	Overseas Acquisition Number
GAC	Geographic Area Code
LAN	Languages
CSO	Cataloging Source

DISPLAY FORMAT EXAMPLE

Name: Full Bibliographic Display Format
ID: FULL

```
 1.      MET    00  Spline functions and approximation theory.
 2.      TSSB       Proceedings of the Symposium held at the
 3.                 University of Alberta, Edmonton, May 29 to
 4.                 June 1, 1972.
 5.      TSRT       Ed. by A. Meir and A. Sharma.
 6.      PP         Basel, Stuttgart, Birkhaeuser,
 7.      D          1973.
 8.      PG         386 p.
 9.      SZ         25 cm.
10.      REC        am
11.      CARD       73168561
12.      SN
13.      SNST       International series of numerical mathematics,
14.      SNSV       v. 21
15.      SNTI       Y
16.      SASU       Spline theory - Congresses.
17.      SASU       Approximation theory - Congresses.
18.      OAPN       Meir, A., ed.
19.      OAPN       Sharma, A., ed.
20.      DC         511/.42
21.      ISBN       376430670X
22.      L          eng
23.      CP         sz
24.      LC         QA224.S65
25.      MS         N
26.      LPR        64.00F
```

DISPLAY FORMAT CONTENTS

Name: Full Reference Display Format
ID: REF

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

RREC	Reference Record Type
SRCE	Source of Reference
RFPN	Reference Entry Referred from-Personal Name
RFCA	Reference Entry Referred from-Corporate Name
RFCF	Reference Entry Referred from-Conference Name
RFT	Reference Entry Referred from-Title Entry
RFSU	Reference Entry Referred from-Subject Entry
RTT	Reference Entry Referred to-Title Entry
RTPN	Reference Entry Referred to-Personal Name
RTPT	Reference Entry Referred to-Personal Name/Title
RTUT	Reference Entry Referred to-Uniform Title Entry
RTCA	Reference Entry Referred to-Corporate Name
RTCF	Reference Entry Referred to-Conference Name
RTAT	Reference Entry Referred to-Corporate Name/Title
RTFT	Reference Entry Referred to-Conference Name/Title
RTSU	Reference Entry Referred to-Subject Entry
RTSX	Reference Structure Text
RSTA	Reference Explanatory Entry Referred to-Corporate Name
RSTF	Reference Explanatory Entry Referred to-Conference Name
RSTP	Reference Explanatory Entry Referred to-Personal Name
RSTS	Reference Explanatory Entry Referred to-Subject
RSTT	Reference Explanatory Entry Referred to-Title

DISPLAY FORMAT EXAMPLE

Name: Full Reference Display Format
ID: REF

```
RREC:SE   SRCE:LC68/72

     United States. Office of Education.
       Educational Research Information Center

       see

   United States. Educational Research Information
     Center.
```

XI. INPUT FORMATS

This section contains a description of each of the nine input formats available in the NETWORK function. There is an example of each format and a list of the data elements contained in each format. General editing rules for the format are also given. For details about the editing of specific data elements, please consult the "BALLOTS Data Elements Notebook" (see first paragraph in Section XIII).

There are four basic formats: TOP, MIDDLE, BOTTOM, and HOLDINGS. The contents of two of the formats may be subdivided into other formats; that is, instead of working with MIDDLE, one may call for SERIES and NOTES, and instead of working with BOTTOM, one may use SUBJECTS, TRACINGS, and/or ADDED SERIES. The subdivided formats are mutually exclusive.

These pages are organized in alphabetical order by the name of the format. The logical order of the formats is as follows:

TOP - Data that appears at the top of a Library of Congress card: main entry, body of the entry, collation; plus control information that may be scattered on the card or not printed at all.

MIDDLE - Data that appears in the middle of a Library of Congress card: series notes and other notes.

or
SERIES - Series notes.

or
NOTES - Other notes.

BOTTOM - Data that appears near the bottom of a Library of Congress card: subject headings and tracings.

or
SUBJECTS - Subject added entries.

or
TRACINGS - Other added entries.

or
ADDED SERIES - Series added entries.

HOLDINGS - Call number and other local data.

XI. INPUT FORMATS cont.

You must decide which of these formats is necessary to complete your cataloging of a title, in order to generate an output suitable for your library's use. To do this, determine which data elements need to be entered, added, or modified to reflect your library's description of the title. Then determine which formats contain these data elements, and call for these formats by name, one by one. (That is, you must complete the work on one format before you can call for another. You cannot chain past--see the explanation of command chaining in Section IX, "Commands" --an input format call.) Exception: when you give the CREATE command in order to key data for a title that does not exist in the BALLOTS on-line files, the system automatically executes a format call command for the TOP (First Bibliographic Input) format.

You may call for the input formats in any order. You may find it helpful to use the formats in the logical order listed above, to guide you through the creation or updating of a record. Note that you may not go back to a format you have already used for the current record. For example, if you have used the TOP format and have just completed the NOTES format, you may not go back to the TOP format. Also, some data elements appear on two input formats. For example, SASU ("Subject Added Entry-Topical Subject Heading") appears on the SUBJECTS and BOTTOM (Third Bibliographic Input) formats. If you have used one of these formats, you may not then use the other. The complete list of such mutually exclusive formats is:

MIDDLE and NOTES
MIDDLE and SERIES
BOTTOM and TRACINGS
BOTTOM and SUBJECTS
BOTTOM and ADDED SERIES

Should you find yourself needing to go back to a previously used format, you may decide that it is easier to CANCEL the record and begin again. Or you may decide to enter the record, recover it by PDQ number, and modify the data as needed.

The HOLDINGS format is required. That is, you must have completed the HOLDINGS format before you can enter a record in the deferred queue (PDQ). However, if you are updating a PDQ record, the HOLDINGS format is not required.

Once you have initiated input activity, either by giving the CREATE command or by giving a format call command for an input format, you have entered input/update mode. When in this mode, you must either complete your cataloging, by entering the required input format(s) successfully, or you must cancel the activity (through the CANCEL command) before you can resume search activity.

XI. INPUT FORMATS cont.

Once you have called for an input format, if you are updating an existing record rather than creating a new record, the complete contents of the format will be listed for you. If you wish to avoid this listing, give the "set nolist" command. Once given, this command remains in effect for all future format calls until the "set list" command is given. Even if you have set nolist, you can list a format by giving the EXAMINE command.

An input format is a numbered series of lines of data. Each line is composed of four portions: (1) the line number, (2) the data element mnemonic, (3) optional data element indicators, and (4) the value of the data element. The line number identifies each line of text and thus permits you to inform the system which lines on the format you want to modify, delete, or add (see the COLLECT, DELETE, INSERT, and MODIFY commands). The data element mnemonic identifies the information (the "value") that is present or that you could input here. You may supply the optional indicators appropriate to the data elements. The optional indicators provide special system processing instructions for a given data element. The BALLOTS Data Elements Notebook (see Section XIII, "Data Elements") lists the valid indicators for each data element. The data element value is the information that you will either input or modify in order to catalog your material.

The data element mnemonic and any indicators present are displayed on the input format only once at the beginning of the input field. If all of the data you are keying for a data element value will not fit on one line, you must input a continuation character at the end of the line--the underscore character "_"--to signal to the system that more input lines are needed to complete the data element. This will cause the system to prompt a new, numbered blank line. You will continue keying the value, starting in column 11 of the new line. The system will position the cursor or print head at column 11 if you have hit the underscore key. Note: the system supplies a blank at the end of the line(s) in which you key the continuation character. This prompting of new lines for input is described under the INSERT command in Section IX.

You can modify an existing data element value by using the MODIFY command with the data element mnemonic or with the number(s) of the line(s) you want to alter. If the data element name is given in the MODIFY statement, all the lines of the element value will be prompted in turn for alteration.

When you indicate you have finished with an input format, either by calling for another input format or by giving the ENTER command, the system will edit the work you have done on the present format. If the system detects any errors in your input, it will prompt you to correct the invalid data.

XI. INPUT FORMATS cont.

In the case of an error in a single data element, an error message will be displayed, followed by the line number, data element mnemonic, and incorrect line of data. The system will then prompt "ALTERS?" (as if you had issued a MODIFY command against the data element), and you may proceed to modify the data element. In the case of errors involving more than one data element, the system will display error messages. You must then make appropriate changes until you have corrected all the invalid data and successfully entered the input format. The system will then return the message "input format accepted".

Once you feel you have completed keying and editing all the data on the current format, you may wish to give the EXAMINE command in order to review your work. Remember that once you have gone on to another input format, you may not go back to a preceding one.

You may want to end your input activity with a CANCEL command for any of a number of reasons. For example: you have gotten confused or lost and wish to start over; you have made so many mistakes that it would be easier to begin again with a fresh copy of the record; you have been interrupted and can't remember what you've done; or someone urgently needs to use the terminal and can't wait for you to finish. Remember that the CANCEL command wipes out all activity against this record.

Note: delimiters, if present for data elements, must be preceded and followed by a space so that the system can distinguish between a dollar sign used as data (e.g., in a price) and a dollar sign used as part of a delimiter. The system edits data elements for the validity of the delimiters given.

RECORD USED IN SAMPLE INPUT FORMATS, SHOWN ON LONG DATA DISPLAY FORMAT:

```
Record   1 of  20
McPherson, Joseph H.
  Managing business social concerns : a research report / by the
Long Range Planning Service, Stanford Research Institute, [by
Joseph H. McPherson, Robert W. Dawson].  Menlo Park, Calif. : The
Service, 1972-
  v.    :  ill. ;  28 cm.  (Report - Long Range Planning Service,
Stanford Research Institute ; no. 480-481)

  Cover title.
  "Report group: Global."
  INCOMPLETE CONTENTS: v. 1. Expectations and pressures.--v. 2.
The response.

  1.Industry - Social aspects - United States - Collected works.
I.Dawson, Robert W., joint author.  II.Stanford Research
Institute. Long Range Planning Service.  III.TITLE.  (IV.SER:
Stanford Research Institute. Long Range Planning Service.  Report
; no. 480 [etc.])
CRD:75-314358
HC101.S77 no. 480, etc.   HD60.5.U5   330/.08 s@ 658.4/08
CP:cau   L:eng   REC:am     MS:N
```

RULES FOR INPUT FORMATS

Name: Added Series Input Format
Format Call Command: ADD or ADDED SERIES

1. This format contains series information that does not occur in the series note position following the collation statement. This is generally a different form of the same information that appears in a series note.

2. The user must input the data element mnemonics on this format when it is used with a CREATE command. No data element mnemonics are prompted.

3. Each separate series entry forms a structure consisting of an (optional) author, a title, and an (optional) volume number. Each entry must be preceded by the structure name SE. The remainder of the line on which the SE structure name is input must be blank.

4. Within any given series structure, there must be an SEST data element. SECA, SECF, SEPN, and SEUT are optional, but you must choose only one of them to be part of the structure. In addition, you may input an SESV data element; it is also optional.

5. Within any given series structure, each data element may occur only once. There may be more than one series structure.

INPUT FORMAT CONTENTS

Name: Added Series Input Format
ID: ADDED SERIES (ADD)

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

SE	Series Added Entry Structure Indicator
SECA	Series Added Entry-Corporate Name
SECF	Series Added Entry-Conference Name
SEPN	Series Added Entry-Personal Name
SEUT	Series Added Entry-Uniform Title
SEST	Series Added Entry-Series Title
SESV	Series Added Entry-Series Volume

INPUT FORMAT EXAMPLE

Name: Added Series Input Format
ID: ADDED SERIES (ADD)

1.	SE	
2.	SECA	Stanford Research Institute. Long Range Planning
3.		Service.
4.	SEST	Report ;
5.	SESV	no. 480 [etc.]

RULES FOR INPUT FORMATS

Name: Third Bibliographic Input Format
Format Call Command: BOT or BOTTOM

1. This format contains the information that generally appears at the bottom of a Library of Congress card: subject headings; tracings for joint authors, titles, etc.; and series added entries.

2. The user must input the data element mnemonics on this format when it is used with a CREATE command. No data element mnemonics are prompted.

3. Each separate series entry forms a structure consisting of an (optional) author, a title, and an (optional) volume number. Each entry must be preceded by the structure name SE. The remainder of the line on which the SE structure name is input must be blank.

4. Within any given series structure, there must be an SEST data element unless SEUT is used. SECA, SECF, SEPN, and SEUT are optional, but you must choose only one of them to be part of the structure. In addition, you may input an SESV data element; it is also optional.

5. Within any given series structure, each data element may occur only once. There may be more than one series structure. The other data elements on this format may occur as often as necessary.

INPUT FORMAT CONTENTS

Name: Third Bibliographic Input Format
ID: BOTTOM (BOT)

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

SASU	Subject Added Entry-Topical Subject Heading
SAGN	Subject Added Entry-Geographic Name
SAUT	Subject Added Entry-Uniform Title
SAPN	Subject Added Entry-Personal Name
SAPT	Subject Added Entry-Personal Name/Title
SACA	Subject Added Entry-Corporate Name
SAAT	Subject Added Entry-Corporate Name/Title
SACF	Subject Added Entry-Conference Name
SAFT	Subject Added Entry-Conference Name/Title
OAPN	Other Added Entry-Personal Name
OAPT	Other Added Entry-Personal Name/Title
OACA	Other Added Entry-Corporate Name
OAAT	Other Added Entry-Corporate Name/Title
OACF	Other Added Entry-Conference Name
OAFT	Other Added Entry-Conference Name/Title
OAUT	Other Added Entry-Uniform Title
OATA	Other Added Entry-Added Title
SE	Series Added Entry Structure Indicator
SECA	Series Added Entry-Corporate Name
SECF	Series Added Entry-Conference Name
SEPN	Series Added Entry-Personal Name
SEUT	Series Added Entry-Uniform Title
SEST	Series Added Entry-Series Title
SESV	Series Added Entry-Series Volume

INPUT FORMAT EXAMPLE

Name: Third Bibliographic Input Format
ID: BOTTOM (BOT)

1.	SASU	Industry - Social aspects - United States -
2.		Collected works.
3.	OAPN	Dawson, Robert W., joint author.
4.	OACA	Stanford Research Institute. Long Range
5.		Planning Service.
6.	SE	
7.	SECA	Stanford Research Institute. Long Range
8.		Planning Service.
9.	SEST	Report ;
10.	SESV	no. 480 [etc.]

RULES FOR INPUT FORMATS

Name: Holdings Input Format
Format Call Command: HOL or HOLDINGS

1. This format is used by individual libraries to input their own call numbers, shelving locations, local system identification numbers, and any other data particular to the library not provided for elsewhere.

2. The system will prompt the data element mnemonics CALL, BRN, and LSI when you first enter a record. If you are updating a PDQ record (following a RECOVER command), the entire contents of the format will be listed for you.

3. CALL, CID, LSI, and LIBC may occur only once. The other data elements may occur as often as necessary.

4. The system sets the value for CID to the value of OID. It may be modified.

5. The system sets the value for LIBC to the value of LI. It may not be modified.

INPUT FORMAT CONTENTS

Name: Holdings Input Format
ID: HOLDINGS (HOLD, HOL)

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

CALL	Call Number
VOL	Volume Holdings
BRN	Branch
COP	Copy Information
VARI	Copy Variation
LSI	Local System Identification Number
CID	Cataloger's Initials
LIBC	Library Code
PRI	Price
LDA	Local Data Element A
LDB	Local Data Element B
LDC	Local Data Element C
LDD	Local Data Element D
LDE	Local Data Element E
LDF	Local Data Element F
LDG	Local Data Element G

INPUT FORMAT EXAMPLE

Name: Holdings Input Format
ID: HOLDINGS (HOLD, HOL)

1.	CALL	330.08 M
2.	BRN	Central
3.	LSI	123456
4.	CID	LEN
5.	LIBC	O
6.	LDA	rl

(Note: This format is shown after modification by a user.)

RULES FOR INPUT FORMATS

Name: Second Bibliographic Input Format
Format Call Command: MID or MIDDLE

1. This format contains information generally found in the middle of a Library of Congress card: series notes that follow the collation statement; annotations; and all other forms of notes. Note that if a series note is to be traced in the same form, it is only input once and need not be repeated on the BOTTOM or ADDED SERIES format.

2. The user must input the data element mnemonics on this format when creating a new record.

3. Each separate series entry forms a structure consisting of an (optional) author, a title, an (optional) volume number, an (optional) International Standard Serial Number, and an (optional) tracing indicator. Each entry must be preceded by the structure name SN. The remainder of the line on which the SN structure name is input must be blank.

4. Within any given series structure, there must be an SNST data element. SNCA, SNCF, and SNPN are optional, but you may choose only one of them to be part of the structure. In addition, you may input ISSN, SNSV, and/or SNTI; these also are all optional.

5. Only one occurrence of NB is allowed. The other data elements may occur as many times as necessary. Within one series note structure, each data element may occur only once, but there may be more than one series note structure.

INPUT FORMAT CONTENTS

Name: Second Bibliographic Input Format
ID: MIDDLE (MID)

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

SN	Series Note Structure Indicator
SNCA	Series Note-Corporate Name
SNCF	Series Note-Conference Name
SNPN	Series Note-Personal Name
SNST	Series Note-Series Title
SNSV	Series Note-Series Volume
ISSN	International Standard Serial Number
SNTI	Series Note-Tracing Indicator
NG	Notes-General
NB	Notes-Bibliographic
NA	Abstract or Annotation
NBW	"Bound With" Note
ND	Dissertation Note
NC	Notes-Contents
NP	Notes-Partial Contents
NM	Notes-Incomplete Contents

INPUT FORMAT EXAMPLE

Name: Second Bibliographic Input Format
ID: MIDDLE (MID)

1.	SN	
2.	SNST	Report - Long Range Planning Service, Stanford
3.		Research Institute ; no. 480-481
4.	NG	Cover title.
5.	NG	"Report group: Global."
6.	NM	v. 1. Expectations and pressures.--v. 2. The
7.		response.

RULES FOR INPUT FORMATS

Name: Notes Input Format
Format Call Command: NOT or NOTES

1. This format contains all notes, including annotations, bibliography notes, contents notes, and all general notes.
2. The user must input the data element mnemonics on this format when it is used with a CREATE command. No data element mnemonics are prompted.
3. Only one occurrence of NB is allowed. The other data elements may occur as many times as necessary.

INPUT FORMAT CONTENTS

Name: Notes Input Format
ID: NOTES (NOT)

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

NG	Notes-General
NB	Notes-Bibliographic
NA	Abstract or Annotation
NBW	"Bound With" Note
ND	Dissertation Note
NC	Notes-Contents
NP	Notes-Partial Contents
NM	Notes-Incomplete Contents

INPUT FORMAT EXAMPLE

Name: Notes Input Format
ID: NOTES (NOT)

```
1.      NG        Cover title.
2.      NG        "Report group: Global."
3.      NM        v. 1. Expectations and pressures.--v. 2. The
4.                response.
```

RULES FOR INPUT FORMATS

Name: Series Input Format
Format Call Command: SER or SERIES

1. This format contains all the series notes that are printed in entries following the collation statement in a Library of Congress card.

2. The user must input the data element mnemonics on this format when it is used with a CREATE command. No data element mnemonics are prompted.

3. Each separate series entry forms a structure consisting of an (optional) author, a title, an (optional) volume number, an (optional) International Standard Serial Number, and an (optional) tracing indicator. Each entry must be preceded by the structure name SN. The remainder of the line on which the SN structure name is input must be blank.

4. Within any given series structure, there must be an SNST data element. SNCA, SNCF, and SNPN are optional, but you must choose only one of them to be part of the structure. In addition, you may input ISSN, SNSV, and/or SNTI; these also are all optional.

5. Within any given series note structure, each data element may occur only once. There may be more than one series note structure.

INPUT FORMAT CONTENTS

Name: Series Input Format
ID: SERIES (SER)

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

SN	Series Note Structure Indicator
SNCA	Series Note-Corporate Name
SNCF	Series Note-Conference Name
SNPN	Series Note-Personal Name
SNST	Series Note-Series Title
SNSV	Series Note-Series Volume
ISSN	International Standard Serial Number
SNTI	Series Note-Tracing Indicator

INPUT FORMAT EXAMPLE

Name: Series Input Format
ID: SERIES (SER)

```
1.      SN
2.      SNST      Report - Long Range Planning Service, Stanford
3.                Research Institute ; no. 480-481
```

RULES FOR INPUT FORMATS

Name: Subjects Input Format
Format Call Command: SUB or SUBJECTS

1. This format contains all the subject headings associated with the title.
2. The user must input the data element mnemonics on this format when it is used with a CREATE command. No data element mnemonics are prompted.
3. All the data elements on this format may occur as often as necessary.

INPUT FORMAT CONTENTS

Name: Subjects Input Format
ID: SUBJECTS (SUB)

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

SASU	Subject Added Entry-Topical Subject Heading
SAGN	Subject Added Entry-Geographic Name
SAUT	Subject Added Entry-Uniform Title
SAPN	Subject Added Entry-Personal Name
SAPT	Subject Added Entry-Personal Name/Title
SACA	Subject Added Entry-Corporate Name
SAAT	Subject Added Entry-Corporate Name/Title
SACF	Subject Added Entry-Conference Name
SAFT	Subject Added Entry-Conference Name/Title

INPUT FORMAT EXAMPLE

Name: Subjects Input Format
ID: SUBJECTS (SUB)

```
1.     SASU      Industry - Social aspects - United States -
2.               Collected works.
```

RULES FOR INPUT FORMATS

Name: First Bibliographic Input Format
Format Call Command: TOP

1. This format contains the main entry, the body of the entry, and the collation statement. It also contains control information such as ISBN ("International Standard Book Number"), INT ("Intellectual Level"), and CARD ("LC Card Number").

2. If you are creating a new record, the system will prompt the data element mnemonics in the following order: ME (this mnemonic must be completed to indicate the type of main entry), TSUT, TST, TSSB, TSRT, ED, PP, D, PG, ILL, SZ, REC, INT, FIC, CARD. You must key the indicators and values that apply to the title you are cataloging. Then you may COLLECT or INSERT additional data elements as appropriate.

3. If you are updating an existing record, the entire contents of the format will be listed for you.

4. On input, MECA or MECF or MEPN or MET or MEUT is required to complete the TOP format.

5. Values for TST and MET cannot be present simultaneously on the TOP format.

6. All the data elements on this format may occur only once.

INPUT FORMAT CONTENTS

Name: First Bibliographic Input Format
ID: TOP

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

MECA	Main Entry-Corporate Name
MECF	Main Entry-Conference Name
MEPN	Main Entry-Personal Name
MET	Main Entry-Title
MEUT	Main Entry-Uniform Title
TSUT	Title Statement-Uniform Title
TST	Title Statement-Short Title
TSSB	Title Statement-Subtitle
TSRT	Title Statement-Remainder of Title
TSRM	Title Statement-Romanized Title
TSTI	Title Statement-Tracing Indicator (used to generate indicator for TST)
ED	Edition
PP	Place and Publisher
D	Date of Publication
PG	Pagination or Volumes
ILL	Illustration Statement
SZ	Size
LPR	Library of Congress Price
SST	Source and Status of Bibliographic Data
REC	Record Type
EL	Encoding Level
MOD	Modified Record Indicator
CP	Country of Publication
CON	Form of Content Codes
DCF	Descriptive Cataloging Form Code
MEI	Main Entry in Body of Entry Indicator
L	Language
ILC	Illustration Codes
GPC	Government Publication Code
CPI	Conference Publication Indicator
FIC	Fiction Indicator
INT	Intellectual Level Code
BIO	Biography Code
FSI	Festschrift Indicator
II	Index Indicator
REP	Form of Reproduction Code
CSC	Cataloging Source Code
PD	Type of Publication Date Code, Date 1, Date 2
CARD	LC Card Number (Full Form)
NUC	NUC Card Number
MS	MARC Status (disabled)

INPUT FORMAT CONTENTS

Name: First Bibliographic Input Format
ID: TOP

DATA ELEMENTS LISTED IN ORDER OF DISPLAY (Cont.):

LC	Library of Congress Call Number
LCA	Alternative LC Call Number
DC	Dewey Decimal Classification Number
NAL	NAL Call Number
NLM	NLM Call Number
ISBN	International Standard Book Number
SUP	Superintendent of Documents Number
NBN	National Bibliography Number
OAN	Overseas Acquisitions Number
GAC	Geographic Area Code
LAN	Languages
CSO	Cataloging Source
DF	Date Entered on File (by LC MARC) (disabled; not visible)

INPUT FORMAT EXAMPLE

Name: First Bibliographic Input Format
ID: TOP

1.	MEPN		McPherson, Joseph H.
2.	TST	10	Managing business social concerns :
3.	TSSB		a research report /
4.	TSRT		by the Long Range Planning Service, Stanford
5.			Research Institute, [by Joseph H. McPherson,
6.			Robert W. Dawson].
7.	PP		Menlo Park, Calif. : The Service,
8.	D		1972-
9.	PG		v. :
10.	ILL		ill. ;
11.	SZ		28 cm.
12.	REC		am
13.	DCF		i
14.	CP		cau
15.	L		eng
16.	CARD		75314358
17.	MS		N
18.	LC		HC101.S77 no. 480, etc.
19.	LCA		HD60.5.U5
20.	DC		330/.08 s@ 658.4/08

RULES FOR INPUT FORMATS

Name: Tracings Input Format
Format Call Command: TRA or TRACINGS

1. This format contains the tracings for joint authors, editors, illustrators, added titles, etc.
2. The user must input the data element mnemonics on this format when it is used with a CREATE command. No data element mnemonics are prompted.
3. All the data elements on this format may occur as often as necessary.

INPUT FORMAT CONTENTS

Name: Tracings Input Format
ID: TRACINGS (TRA)

DATA ELEMENTS LISTED IN ORDER OF DISPLAY:

OAPN	Other Added Entry-Personal Name
OAPT	Other Added Entry-Personal Name/Title
OACA	Other Added Entry-Corporate Name
OAAT	Other Added Entry-Corporate Name/Title
OACF	Other Added Entry-Conference Name
OAFT	Other Added Entry-Conference Name/Title
OAUT	Other Added Entry-Uniform Title
OATA	Other Added Entry-Added Title

INPUT FORMAT EXAMPLE

Name: Tracings Input Format
ID: TRACINGS (TRA)

1.	OAPN	Dawson, Robert W., joint author.
2.	OACA	Stanford Research Institute. Long Range Planning
3.		Service.

XII. INPUT PROCEDURES

In order to summarize catalog record modification and creation through BALLOTS, this section refers the reader to information in several of the preceding sections and then provides specific examples of how a user might perform searching, standing search creation, and cataloging in the NETWORK function.

To prepare for working in the NETWORK function, you should review Section II, "System Overview" for an explanation of how the system operates. Next, turn to Section IX, "Commands", and familiarize yourself with the commands particularly designed for modifying and creating records. (These are: CANCEL, COLLECT, CREATE, DELETE, ENTER, EXAMINE, the format call commands, INSERT, MODIFY, NUMBER, RECOVER, and REMOVE.) Since cataloging activity is generally preceded by and interspersed with searching, you should be aware of all the commands available, both for searching and cataloging. You should also be aware of the display formats you can choose from when looking at a record before using it for cataloging. Study Section XI, "Input Formats", and note the relation of the different formats to each other. This brings you back to this Section, XII, ready to try following the sample sessions below. You should skip forward first, however, and read Section XIII, "Data Elements", in order to be familiar with the last of your three cataloging tools--commands, formats, and data elements.

One aspect of typing in data through a COLLECT or INSERT command should be explained here: the continuation character. The continuation character is an underscore mark (_). When keyed at the end of a line of input, it tells the system that the next line is to be considered as part of the data element you are currently keying. (An underscore character that is in the middle of a data element value is considered part of the data.) When you have completed keying the data element (signaled by a carriage return with no underscore at the end of the last line of the data element), the system will automatically rearrange the lines of data so as to fit the maximum numbers of characters on a line. The maximum is determined by the SET LENGTH command; the default setting is 79 characters. The lines will always be broken at a space between two words.

The continuation character is only to be used with the COLLECT or INSERT command, or in keying data into a HOLDINGS input format, or in response to the data element prompts following a CREATE command. Do not use it when you are working with the MODIFY command. During a modifying sequence, the system will automatically justify the lines to the proper length when data is inserted. See the MODIFY command for this.

The system will not supply a continuation character when it is displaying or listing a several-line data element. Remember that the system always assumes that there is a blank at the end of every line, except at the end of the last (or only) line of a data element. For this reason, you should always put the continuation character at the end of a whole word.

For example:

```
     -? collect
        5.     sasu      Electronic digital computers - Programming_
        6.               - Problems, exercises, etc.
        7.***
     -? examine 5-6
        5.     SASU      Electronic digital computers - Programming -
        6.               Problems, exercises, etc.
```

In Section V, "General Terminal Operation After Logging On", the use of the BREAK key was explained. There are two special ways you can use this key when you are typing data into the system. On input formats where the system prompts data element mnemonics (the First Bibliographic Input Format--TOP--and the Holdings Input Format--HOLDINGS), you may stop this prompting by hitting the BREAK key immediately after a mnemonic is prompted. (Exception: on the TOP format, hitting the BREAK key after the Main Entry--ME--mnemonic yields the message "Mnemonic incomplete". The system then reprompts the mnemonic ME.)

On all input formats, the system edits data input, and you may not proceed to the next format until all errors found by the system have been corrected. The system prompts the line(s) containing errors, followed by the "ALTERS?" prompt. If you wish to review the format before you fix any errors, or to cancel the entire record, hit the BREAK key in response to this "ALTERS?" prompt. The system will then return to the normal "-?" prompt, and you are free to use any other input commands, such as EXAMINE, CANCEL, MODIFY, etc. Note that the BREAK key may not be used to trick the system into accepting an input format containing errors. The editing of data and the prompting of lines containing errors occurs whenever you call for another input format or use the ENTER command.

Following are three sample searching and cataloging sessions. The system prompts, user commands, and system responses are reproduced as exactly as possible; however, numerous bracketed comments have been inserted in the sessions to explain and remark on the actions being carried out. An attempt has been made to illustrate a number of different aspects of searching, and to include a variety of sample situations; this has sometimes produced somewhat unrealistic work sequences. These sample sessions are far from being comprehensive surveys of

XII. INPUT PROCEDURES cont.

the capabilities of the system. But by studying the logic of system and user interaction they display and using the information provided in the other sections of this Guide on commands, formats, the contents of files, etc., you should be able to use the sessions as a springboard for your own more extensive uses of BALLOTS.

The imaginary user in these sessions is a librarian named Susan, who works at the Unknown County Library.

First Session: Ways to Search for and Display a Record

```
please type your terminal identifiera [initial system response
                                      after the TYMNET number is
                                      is dialed; user types
                                      lowercase a]
-1017-22--
please log in:aaplanl [backspace before typing this]

password: XXX
PLAN IS ONLINE


ENCINA LINE 138 16:29:09 02/25/76

TERMINAL? m32
USER? unk bt
KEYWORD? XXX

COMMAND? call ballots
NAME? susan
                          BALLOTS NEWS
                             2/20/76

                The MRC File has 324,892 records.
          The combined REF/CDF/IPF has 246,370 records.

Welcome to BALLOTS, Susan
-? set fun network [Susan could perform searches through
                   the INQUIRY or SEARCH function, but
                   routinely sets the NETWORK function in
                   preparation for cataloging activity
                   after her searching]
```

XII. INPUT PROCEDURES cont.

[Susan has been asked to compile a selected bibliography of works by Mark Twain:]

```
-? fin a mark twain
-NONE IN MRC
-RESULT:     3 BOOKS IN REF
-? dis
RREC:SEAU

     Twain, Mark

       see

   Clemens, Samuel Langhorne.
 +B? fin a clemens, s l
-RESULT:    63 BOOKS IN MRC
```

[--The system has prompted Susan (by "+B?") to hit the carriage return and so agree to page forward to another Full Reference Format, "REF", display of the next record in her initial search results. However, since the system only indexes by established references, she knows from this record that she wants to key a new search. She does so, overriding the prompted default command.

The search results are decidedly large; to help her review it quickly and efficiently, Susan next issues two commands, chained together by a slash. In the first she asks to see only the main entry, title, and subject data elements in each record, rather than being shown the Short Data Display format ("SHO"), on which search results are displayed by default. In the second she asks that all the records be displayed "continuously" ("con")-- that is, that the system not pause after each record displayed and prompt her to ask for the next record:]

```
-? set elements me ts sa/dis con
Record   1 of  63
   1.     MEPN        Clemens, Samuel Langhorne, 1835-1910.
   2.     TST    10   Mark Twain's letters in the Muscatine journal /
   3.     TSRT        edited with an introd. by Edgar M. Branch.

Record   2 of  63
   1.     MEPN        Clemens, Samuel Langhorne, 1835-1910.
   2.     TST    10   Mark Twain's Letters /
   3.     TSRT        arr. with comment by Albert Bigelow Paine.
   4.     SAPN        Clemens, Samuel Langhorne, 1835-1910 -
   5.                 Correspondence.
```

XII. INPUT PROCEDURES cont.

```
Record   3 of  63
   1.     MEPN        Clemens, Samuel Langhorne, 1835-1910.
   2.     TST    10   Mark Twain's letters from Hawaii /
   3.     TSRT        edited and with an introd. by A. Grove Day.
   4.     SASU        Hawaii - Description and travel - To 1950.
   5.     SAPN        Clemens, Samuel Langhorne, 1835-1910 -
   6.                 Journeys.
   ***
```

[--Susan hits the BREAK key in order to stop the continuous display of her search results. She selects record 2 of her result as the first title to place in her bibliography, and asks to have it redisplayed, and to have it displayed on the Long Bibliographic Display format, "LONG" or "LON". This will enable her to see the record in a catalog-card-like format:]

```
-? dis 2/lon
Record   2 of  63
Clemens, Samuel Langhorne, 1835-1910.
  Mark Twain's Letters / arr. with comment by Albert Bigelow Paine.
New York : AMS Press, [1975]
   p. cm.

  Reprint of the 1971 ed. published by Harper, New York.

  1.Clemens, Samuel Langhorne, 1835-1910 - Correspondence.  I.Paine,
Albert Bigelow, 1861-1937.  II.TITLE.
CRD:74-6025
PS1331.A3 1975   818/.4/09@ B  0404115454
CP:nyu   L:eng   REC:am     MS:X

 +B? sho length
DISPLAY  LENGTH =  79
INPUT    LENGTH =  79
CARRIAGE LENGTH =  80
-? set len 48
```

[--Here Susan is formatting this record to be displayed in the same area as if it were printed on catalog card stock; it is her intention to turn on the printer attachment at her CRT terminal and simply list off each bibliography entry in this manner.]

```
-? sho len
DISPLAY  LENGTH =  48
INPUT    LENGTH =  79
CARRIAGE LENGTH =  80
-? lon
```

XII. INPUT PROCEDURES cont.

```
Record  2 of  63

Clemens, Samuel Langhorne, 1835-1910.
  Mark Twain's Letters / arr. with comment by
Albert Bigelow Paine.  New York : AMS Press,
[1975]
   p. cm.

  Reprint of the 1917 ed. published by Harper,
New York.

  1.Clemens, Samuel Langhorne, 1835-1910 -
Correspondence.  I.Paine, Albert Bigelow, 1861-
1937.  II.TITLE.
CRD:74-6025
PS1331.A3 1975   818/.4/09@ B  0404115454
CP:nyu   L:eng   REC:am     MS:X

 +B?
```

[Etc....Having completed her first bibliography and reset the display length, Susan turns to some subject searches for other possible bibliographies:]

```
-? fin subj household shrines
-NONE IN MRC
-NONE IN REF
-NONE IN CDF
-NONE IN IPF

-? fin subj industrial accidents
-NONE IN MRC
-NONE IN REF
-RESULT:     2 BOOKS IN CDF
-? dis con
Record 1 of 2
Surry, Jean.
  Industrial accident research: a human engineering appraisal.
[Toronto, University of Toronto, Dept. of Industrial Engineering
1971]
CRD:71-576057      ID:616575S

Record 2 of 2
Hale, Andrew Richard.
  A review of the industrial accident research literature, London,
H.M.S.O., 1972.
CRD:73-155457      ID:88722S
```

XII. INPUT PROCEDURES cont.

[Susan's next search request is for a title requested by a patron who knows only that the author's name is "Logan" that his first name is Tim or Tom, and that the book deals with the BALLOTS system:]

```
-? fin pn t. logan
-RESULT:      6 BOOKS IN MRC
-? and t ballots
-ZERO RESULT, LAST KEPT.
-RESULT:      6 BOOKS IN MRC
```

[--Note that when the system backs up to the last non-zero search result found, it also backs up to the search request that produced that result; therefore, the search modification "and t ballots" has been dropped. Again, Susan choses to set only the main entry and title data elements for her search results display:]

```
-? set elements me tst/dis con
Record   1 of   6
   1.     MEPN      Taylor, Harrison D., 1802-1889.
   2.     TST   10  Ohio County, Kentucky, in the olden days;

Record   2 of   6
   1.     MEPN      Logan, Terence P.
   2.     TST   10  The popular school :

Record   3 of   6
   1.     MECA      Wisconsin. University. Seminar on Urban
   2.               Functions, Spatial Organization, and
   3.               Environmental Form.
   4.     TST   10  The study of urban change,

Record   4 of   6
   1.     MEPN      Logan, Marie T.
   2.     TST   10  Mississippi-Louisiana border country:

Record   5 of   6
   1.     MEPN      Logan, Terence P.
   2.     TST   10  The predecessors of Shakespeare;

Record   6 of   6
   1.     MEPN      Logan, Thomas H.
   2.     TST   10  The invention of zoning in the emerging planning
   3.               profession of late-nineteenth-century Germany,
```

XII. INPUT PROCEDURES cont.

[Susan now reinstates the default arrangement of displaying all the data elements permitted on a screen format by giving the SET ELEMENT command (in its abbreviated form). (Since the response to her first SET ELEMENT <elements> command was to display these elements from the Full Data Display Format, "FULL", the system now assumes that she has, in effect, set the FULL format for future record displays. For this reason, the next record displayed appears on the FULL format rather than the usual default SHO format.) Susan then tells the system to resume searching in the next file in the default file searching sequence:]

```
-? set ele
-? res
-NONE IN REF
-RESULT:      4 BOOKS IN CDF
-? sho search
FIN PN T. LOGAN
-? and t ballots
-RESULT:      1 BOOK IN CDF
  1.      ID        2062046
  2.      MET   00  User's view of BALLOTS:
  3.      TSSB      nos. 4, 5, 6 and 7.
  4.      PP        Stanford, Calif., BALLOTS Project,
  5.      D         1973-74.
  6.      PG        1 v. (various pagings)
  7.      SZ        28cm.
  8.      REC       AC
  9.      NG        Cover title.
 10.      NG        Each no. has special t.p.
 11.      NG        No. 4 incorporates A user's views of BALLOTS:
 12.                nos. 1-3.
 13.      NG        Contributors: Madeleine Stovel and Eleanor
 14.                Montague.
 15.      NB        Bibliography: no.4,p.56-57.
 16.      NC        no.4.The PO/OC Module, by T.Logan and G.H.Cady.-
 17.                no.5.The ACC/NPO Modules: a supplement to no.4,
 18.                by T.Logan and M.Stovel.-no.6.The Standing Order
 19.                (SO) module: a supplement to nos.4 and 5.-no.7.The
 20.                Out-of-Print (OP) module: a supplement to nos. 4,
 21.                5 and 6, by G.H.Cady.
 22.      SACA      BALLOTS Project.

 +?
```

[--The system has formatted the record into frames of 24 lines each (see the explanation of this in Section V, "General Terminal Operation After Logging On"), and has now prompted "+?" to know

XII. INPUT PROCEDURES cont.

if the user wants to see the next frame of this record. Susan answers in the affirmative by simply hitting the carriage return; if Susan had NOT been interested in seeing any more of this record, she could have typed an alternative command at this point.]

```
 23.     SACA      Stanford University. Libraries.
 24.     OAPN      Montague, Eleanor.
 25.     OAPN      Stovel, Madeleine D., 1942-
 26.     OAPT      Logan, Timothy. $t  A user's view of BALLOTS:
 27.               no.4: The PO/OC module.
 28.     OAPT      Cady, Glee Harrah. $t  A user's view of BALLOTS:
 29.               no.4: The PO/OC module.
 30.     L         Eng
 31.     CP        CAU
 32.     SST       1S
 33.     RCDM      SCDF
```

[Susan's last search in this session is to locate a work by the Russian author Solzhenitsyn. To include any possible variations in the spelling of the surname, she truncates it in her search, using the pound sign (this is covered in Section VIII, "Searching Procedures":]

```
-? fin pn solzh#
-RESULT:     27 BOOKS IN MRC
-? and t gulag
-RESULT:      2 BOOKS IN MRC
-? dis con
Record   1 of   2
Solzhenitsyn, Alexandr Isaevich, 1918-
  The Gulag archipelago, 1918-1956 : London : Collins : Harvill
Press, 1974.
CRD:74-196238

Record   2 of   2
Solzhenitsyn, Alexandr Isaevich, 1918-
  The Gulag archipelago, 1918-1956; New York, Harper & Row [1974]
CRD:73-22756

-? res
-NONE IN REF
-RESULT:      5 BOOKS IN CDF
-? dis con
Record   1 of   5
Solzhenitsyn, Aleksandr I.
  Arkhipelag gulag, 1918-1956;  YMCA-Press, c1973-
ID:2605120M
```

XII. INPUT PROCEDURES cont.

```
Record   2 of   5
Zhit' ne po lzhi.  Paris, YMCA Press, [1975]
CRD:75-541223      ID:2212420S

Record   3 of   5
Solzhenitsyn, Aleksandr I.
  The Gulag Archipelago, Harper & Row, c1974.
ID:1237306M

[Etc....]

-? res
-RESULT:      3 BOOKS IN IPF
-? dis con
Record   1 of   3
Solzhenitsyn, Aleksandr I.
  The Gulag Archipelago, Harper & Row, c1974.
ID:1237306M

Record   2 of   3
Solzhenitsyn, Aleksandr Isaevich, 1918-
  Arkhipelag Gulag, 1918-1956;  Paris, YMCA-Press [1973]
ID:474983S

Record   3 of   3
Solzheitsyn, Aleksandr Isaevich, 1918-
  Arkhipelag Gulag, 1918-1956,  Paris, YMCA-Press [1973]
ID:140643S
```

[Susan has searched all the BALLOTS files without finding the book she wants. At this point, however, an associate returns from lunch with the paperback edition of the very book desired, and Susan is able to get from it the actual Library of Congress card number. With this she keys a precise search to verify her lack of results so far:]

```
-? fin crd 75-116997
-NONE IN MRC
-NONE IN REF
-NONE IN CDF
-NONE IN IPF
```

[Now expecting that the title in question will soon appear in the MRC File as the contents of L. C. MARC tapes are added to the file, Susan turns this last search into a standing search request that will be run against the

XII. INPUT PROCEDURES cont.

MRC File once a month for three months, by using the KEEP command:]

```
-? keep
Entry processed.
-BSSR = 27232
-?
```

[--The default length of time for a standing search record to be retained is three months, so Susan needn't specify a number of months in her KEEP command.]

Second Terminal Session: Searching for and Using a BALLOTS Record for Cataloging

---

```
please type your terminal identifiera
-1017-22--
please log in:aaplanl

password: XXX
PLAN IS ONLINE


ENCINA LINE 122 09:03:16 03/01/76

TERMINAL? m32
USER? unk bt
KEYWORD? XXX

COMMAND? call ballots
NAME? susan

                         BALLOTS NEWS...

-? set fun net
-? fin pn G. Salton and t dynamic library
-RESULT:     1 BOOK IN MRC
Salton, Gerard.
  Dynamic information and library processing /  Englewood Cliffs,
N.J. : Prentice-Hall, [1975]
CRD:74-31452
```

[--(Note that when only one title is found, the system displays it immediately.) This display was on the Short Data Display Format, "SHORT", the default display for records found in searching. Susan knows this is the record she wants and now wants to see more of it, so she asks for the Long Data Display Format, "LONG" or "LON":]

```
-? lon
Salton, Gerard.
  Dynamic information and library processing. / Gerard Salton.
Englewood Cliffs,N.J. : Prentice-Hall, [1975]
  xiv, 523 p. :  ill. ;  24 cm.

  Includes bibliographical references and indexes.

  1.Electronic data processing - Library science.  2.Information
science.  I.TITLE."
CRD.74-31452
Z678.9.S3   029.7  o132213257
CP:nju   L:eng   REC:am     MS:P
```

[Now, to use this record as the basis for a catalog record for Unknown County Library, Susan requests the First Bibliographic Input Format, "TOP", the input-update format on which she can modify the main entry, the body of the entry, the collation statement, and various items of control information like the International Standard Book Number or the Library of Congress Card Number. The system displays each unit of information in the format on a separate numbered line, following its data element mnemonic tag and any delimiter or indicators present in the MRC record (in this case, the indicator characters "10" appear in line 2):]

```
-? top
   1.      MEPN       Salton, Gerard.
   2.      TST   10   Dynamic information and library processing /
   3.      TSRT       Gerard Salton.
   4.      PP         Englewood Cliffs, N.J. : Prentice-Hall,
   5.      D          [1975]
   6.      PG         xiv, 523 p. :
   7.      ILL        ill. ;
   8.      SZ         24 cm.
   9.      REC        am
  10.      DCF        i
  11.      CP         nju
  12.      L          eng
  13.      CARD       7431452
  14.      MS         P
  15.      LC         Z678.9.S3
  16.      DC         029.7
  17.      ISBN       0132213257
```

XII. INPUT PROCEDURES cont.

[The information in each input format is divided into numbered lines; alterations can be made by reference to these line numbers (see the MODIFY command in Section IX). Susan has a copy of Salton's book in her hand, and referring to it she makes an alteration to the Main Entry - Personal Name as follows:]

```
-? mod mepn
   1.     MEPN      Salton, Gerard.
 ALTERS?                          i P
   1.     MEPN      Salton, Gerard P.
 ALTERS?
-?
```

[Susan next asks for the Second Bibliographic Input Format, "MIDDLE" or "MID", having seen on the LONG format that the MRC record lacks an abstract note. Since the MRC record provides only "Notes - Bibliographic" (NB), she adds to her version an "Abstract or Annotation (NA). Here she employs the COLLECT command:]

```
-? mid
   1.     NB        Includes bibliographical references and indexes.
-? col 2
   2.     na        A state of the art review of systems_
   3.               analysis, evaluation, and dynamic information_
   4.               processing in a library.
   5.     ***
-? exa
   1.     NB        Includes bibliographical references and indexes.
   2.     NA        A state of the art review of systems analysis,
   3.               evaluation, and dynamic information processing
   4.               in a library.
```

[--The underscore (_) indicates to the system that the next line Susan keys will be a continuation of the data she has just input. The triple asterisk is the system's response as it returns to command mode after the BREAK key has been hit. Note that Susan used the EXAMINE command to doublecheck her alterations to the record. Susan then calls for the Third Bibliographic Input Format, "BOTTOM" or "BOT", which contains any added entries in the record. She uses the DELETE command to remove a "Subject Added Entry - Topical Subject Heading" (SASU) and then collects the line she has just deleted in order to type in her own SASU value instead (she could have said "mod 2" here, deleted the word "Information" in that line, and inserted the word "Library", as another way to accomplish this change):]

XII. INPUT PROCEDURES cont.

```
-? bot
   1.     SASU      Electronic data processing - Library science.
   2.     SASU      Information science.
-? del 2
-? col 2
   2.     sasu      Library science.
   3.     ***
```

[Last, Susan calls for the Holdings Input Format, "HOLDINGS", "HOLD", or "HOL", in order to add holdings information to the record for Unknown County Library:]

```
-? hol
   1.     CALL       Z678.9 S3
   2.     BRN        main
   3.     LSI        2345a
-? exa
   1.     CALL       Z678.9 S3
   2.     BRN        main
   3.     LSI        2345A
   4.     CID        sus
   5.     LIBC       K
```

[--Note: the system draws on the log-on sequence for the "Cataloger's Initials" (CID) and the "Library Code" (LIBC). These data elements are present on the HOLDINGS format in lines 4 and 5, but are not displayed when the user is adding data to the record.]

```
-? ent
Entry processed.
-PDQ = 4000
```

[--As a result of Susan's ENTER command, the system has taken the record as she modified it and has entered it in the Print Data Queue for overnight processing; it will end up as a record sent to the Unknown County Library on magnetic tape, for input to the commercial book catalog program used by that library. At this point, if Susan wants to look at the record again, she can use the RECOVER command with the PDQ number in order to do so.]

Susan takes up another book from her book truck and this time tries a corporate name search:]

```
-? fin cn toronto industrial engineering
-NONE IN MRC
-NONE IN REF
-RESULT:     1 BOOK IN CDF
```

```
Surry, Jean.
  Industrial accident research: a human engineering appraisal.
[Toronto, University of Toronto, Dept. of Industrial Engineering
1971]
CRD:71-576057      ID:616575S

-? lon
Surry, Jean
  Industrial accident research: a human engineering appraisal.
[Toronto, University of Toronto, Dept. of Industrial Engineering
1971]
  vii,203p.  illus.  24cm.

  First published in 1969.
  Bibliography: p.179-197.

  1.Industrial accidents.  2.Industrial safety.  I.Toronto,
University. Dept. of Industrial engineering.  II.TITLE.
CRD:71-576057
HD7262.S83 1969   614.85/2
SST:2S    CP:ONC    L:ENG    REC:AM     RCDM:SCDF
ID:4103

-? hol
   1.      CALL       HD123.T56
   2.      BRN        branch 3
   3.      LSI
-? ent
Entry processed.
-PDQ = 4103
-?
```

Third Terminal Session: Creating a Catalog Record

[For purposes of illustration, this time Susan will log on by dialing up the Stanford computer directly rather than going through TYMNET. For users within a reasonable radius of Stanford University, this is an alternative to the TYMNET communications system.]

```
a
-scf
...scf 168...
/
```

XII. INPUT PROCEDURES cont.

```
ENCINA LINE 131 10:26:02 03/10/76

TERMINAL? m32
USER? unk bt
KEYWORD? XXX

COMMAND? call ballots
NAME? Susan

                         BALLOTS NEWS...

-? set fun net
-? cre
   1.     MEPN      Rogers, Rutherford D.
   2.     TSUT
   2.     TST       University Library Administration
   3.     TSSB
   3.     TSRT
   3.     ED
   3.     PP        H.W.Wilson, New York.
   4.     D         1971
   5.     PG        454
   6.     ILL       illus.
   7.     SZ        28cm.
   8.     REC       am
   9.     INT
   9.     FIC
   9.     CARD      75116997
-? exa
   1.     MEPN      Rogers, Rutherford D.
   2.     TST       University Library Administration
   3.     PP        H.W.Wilson, New York.
   4.     D         1971
   5.     PG        454
   6.     ILL       illus.
   7.     SZ        28cm.
   8.     REC       am
   9.     CARD      75116997
-? ins 2.1
   2.1    tsrt      [by] Rutherford D. Rogers and David C. Weber.
-? bot
   1.     sasu      Library science
   2.     oapn      Weber, David C.
   3.     ***
-? mid
   1.     nb        Bibliography:p.430-454
   2.     ***
```

XII. INPUT PROCEDURES cont.

```
-? hol
   1.     CALL      Z665.8 R63
   2.     BRN       main branch
   3.     LSI       8765432
-? ent
Entry processed.
-PDQ = 3859
-? rec pdq 3859
Warning: record updated today.

Rogers, Rutherford D.
  University Library Administration [by] Rutherford D. Rogers
and David C. Weber.  H.W.Wilson, New York. 1971
  454  illus.  28cm.

  Bibliography:p.430-454

  1.Library science  I.Weber, David C.
SST:3S   CP:      L:      REC:am     RCDM:SCDF
ID:3859

-? rem pdq 3859
3859 REMOVED.
```

[--As Susan was working at the terminal, a memorandum arrived from the head of the catalog department, announcing a number of changes in cataloging standards, effective immediately. Susan therefore decided to take her newly created original cataloging entry out of the Print Data Queue, intending to re-do her work after reading the memorandum. She did this by giving the REMOVE command with the PDQ number.]

XIII. DATA ELEMENTS

This section is largely repeated from the BALLOTS Data Elements Notebook, for ease of reference. Users of the NETWORK function in particular may need to refer to the detailed data element descriptions in the Notebook. A copy may be ordered from the BALLOTS Documentation Office, SCIP - Willow Trailer, Stanford University, Stanford, CA, 94305, for $20.00. NOTE: This Notebook also contains descriptions of the entire complement of data elements used in the full-face BALLOTS system. This system to which each data element description pertains is clearly indicated throughout the Notebook.

All of the library technical processing information used in BALLOTS is divided into standardized units called "data elements." The names of data elements indicate the information they provide. Each data element name is abbreviated to a one- to four-character mnemonic tag. For example, the mnemonic tag for "Place and Publisher" is PP; the tag for "Edition" is ED.

Data elements should not be confused with their values. For instance, the value of the "Date of Publication" data element (mnemonic tag D) may be "1971" in one record, and "c1970" in another record.

Data elements have two characteristics in addition to their mnemonic tags and values. These are "indicators" and "subfield delimiters". An indicator is a number that is input preceding the value. It tells something about the value of the data element. For example, the first indicator for MEPN ("Main Entry Personal Name") tells whether the name is a single surname, a multiple surname, a forename, etc. A data element may have one or two indicators, or it may have no indicators. Delimiters set off internal portions of a data element's value. These portions are called "subfields". The delimiter is always two characters: a dollar sign followed by a lower case letter. For example, in PP ("Place and Publisher"), the publisher subfield is preceded by the delimiter "$b". When creating or updating a record, one need never input the first or only subfield delimiter of a data element.

Most data elements stand alone. For example, PP, "Place and Publisher". However, some data elements must occur in combination with others in order to mean anything. Data elements that must occur in combination are defined as (1) "superelements," whose mnemonics must always occur with suffixed mnemonics, and (2) "subelements," whose mnemonics must always occur with prefixed mnemonics. A superelement mnemonic and a subelement mnemonic together constitute a valid data element mnemonic.

As an example of this, ME- ("Main Entry") is the superelement that indicates the functional relationship of a name or title in a bibliographic record. -PN ("Personal Name") is one

XIII. DATA ELEMENTS cont.

of the subelement mnemonics that indicates what the characteristics of the main entry are. ME- and -PN are not valid if separated, but MEPN is a valid mnemonic that stands for "Main Entry Personal Name." In the pages following this introduction, superelement mnemonics are always followed by a dash. Subelement mnemonics are always preceded by a dash. (However, such dashes never appear on the video or typewriter terminal.)

A "structure" is a group of data elements that have some logical connection. In certain instances, the system can (or must) process the elements as a group rather than as individual data elements. In these cases, the structure name may be used to refer to the group as a whole. For example, you can use the structure name SA ("Subject Added Entries") in the SET ELEMENT command to mean that you want to see all the subject added entries when a record is displayed. This saves you from having to key the mnemonics for each of the subject added entry data elements. Structure names may also be used in this way in the DELETE and EXAMINE commands. The complete list of valid structure names that may be used in these three commands is:

ME	Main Entry
OA	Other Added Entries
SA	Subject Added Entries
SE	Series Added Entries
SN	Series Note
TS	Title Statement

In each record there will be only one of each of the following structures: ME, OA, SA, and TS. There will be one SN structure for each series note, and one SE structure for each series added entry. In each record there will be only one data element in the ME structure, since there can be only one main entry in a given record.

The only two structure names that you are allowed to input are SE and SN, and you must input these. There must be one structure name for each series. (See the example for the Third Bibliographic Input Format--BOTTOM--in Section XI, "Input Formats".)

Following is a list of the data elements contained in each structure.

ME:

MECA	Main Entry-Corporate Name
MECF	Main Entry-Conference Name
MEPN	Main Entry-Personal Name
MET	Main Entry-Title
MEUT	Main Entry-Uniform Title

XIII. DATA ELEMENTS cont.

OA:

OAAT	Other Added Entry-Corporate Name/Title
OACA	Other Added Entry-Corporate Name
OACF	Other Added Entry-Conference Name
OAFT	Other Added Entry-Conference Name/Title
OAPN	Other Added Entry-Personal Name
OAPT	Other Added Entry-Personal Name/Title
OATA	Other Added Entry-Added Title
OAUT	Other Added Entry-Uniform Title

SA:

SAAT	Subject Added Entry-Corporate Name/Title
SACA	Subject Added Entry-Corporate Name
SACF	Subject Added Entry-Conference Name
SAFT	Subject Added Entry-Conference Name/Title
SAGN	Subject Added Entry-Geographic Name
SAPN	Subject Added Entry-Personal Name
SAPT	Subject Added Entry-Personal Name/Title
SASU	Subject Added Entry-Topical Subject Heading
SAUT	Subject Added Entry-Uniform Title

SE:

SECA	Series Added Entry-Corporate Name
SECF	Series Added Entry-Conference Name
SEPN	Series Added Entry-Personal Name
SEST	Series Added Entry-Series Title
SESV	Series Added Entry-Series Volume
SEUT	Series Added Entry-Uniform Title

SN:

ISSN	International Standard Serial Number
SNCA	Series Note-Corporate Name
SNCF	Series Note-Conference Name
SNPN	Series Note-Personal Name
SNST	Series Note-Series Title
SNSV	Series Note-Series Volume
SNTI	Series Note-Tracing Indicator

TS:

TSRM	Title Statement-Romanized Title
TSRT	Title Statement-Remainder of Title
TSSB	Title Statement-Subtitle
TST	Title Statement-Short Title
TSUT	Title Statement-Uniform Title
TSTI	Title Statement-Tracing Indicator

XIII. DATA ELEMENTS cont.

MARC bibliographic records occasionally have data element errors that are caught either at the time these records are converted from the MARC machine-readable format to the BALLOTS format, or at the time they are added to the on-line MRC File. In order to get these records into the file and yet call the defective data element to the user's attention, BALLOTS follows two printing conventions. On CRT formats and printed outputs showing MRC records, the user must be alert for these specially printed data elements and correct the record before using it in cataloging.

1. If a BALLOTS-required data element is missing from the MARC record, the BALLOTS conversion program supplies one of the two following messages as that data element's value:

*** NO VALUE IN MARC RECORD ***
*** NO MARC VALUE ***

2. If a MARC data element appears to contain a logical error, BALLOTS analysts will not correct the problem, but will flag the data element for the user's attention by preceding the value with three asterisks and a blank and following the value with a blank and three more asterisks. For example:

SNST *** Symposium Reports on Cell Biology. ***

The following pages list the data elements that are:

1. stored in BALLOTS data and index files;
2. displayed and input on the network system's display and input formats;
3. output in network system's printed and machine-readable forms.

XIII. DATA ELEMENTS cont.

List of BALLOTS Data Elements

The following lists the BALLOTS data elements visible to the user of the network system--the INQUIRY, SEARCH, and NETWORK functions--including superelements and subelements.

MNEMONIC	STANDARD NAME	SUPER OR SUBELEMENTS
ACCD	Acquisition Control Code	
ACDT	Acquisition Control Code Date	
BDY	Individual Bibliographic Descriptor	
BIO	Biography Code	
BRN	Branch	
BSSR	Standing Search Identification Number	
-CA	Corporate Name Subelement	ME-,OA-,RF-,RT-, SA-,SE-,SN-
CAL	Call Number (Stanford)	
CALL	Call Number	
CARD	LC Card Number (Full Form)	
-CF	Conference Name Subelement	ME-,OA-,RF-,RT-, SA-,SE-,SN-
CID	Cataloger's Initials	
CIO	Copy, Issue, Offprint Statement	
CON	Form of Content Codes	
COP	Copy Information	
CP	Country of Publication	

XIII. DATA ELEMENTS cont.

MNEMONIC	STANDARD NAME	SUPER OR SUBELEMENTS
CPI	Conference Publication Indicator	
CRD	Library of Congress Card Number	
CRDS	Library of Congress Card Number Revision Indicator	
CSC	Cataloging Source Code	
CSO	Cataloging Source	
D	Date of Publication	
DC	Dewey Decimal Classification Number	
DCF	Descriptive Cataloging Form Code	
DF	Date Entered on File (by LC MARC)	
ED	Edition	
EL	Encoding Level	
FD	File Date	
FIC	Fiction Indicator	
FLI	File Library Identifier	
FSI	Festschrift Indicator	
GAC	Geographic Area Code	
GPC	Government Publication Code	
ID	Record Identification Number	
II	Index Indicator	

XIII. DATA ELEMENTS cont.

MNEMONIC	STANDARD NAME	SUPER OR SUBELEMENTS
ILC	Illustration Codes	
ILL	Illustration Statement	
INT	Intellectual Level Code	
ISBN	International Standard Book Number	
ISSN	International Standard Serial Number	
L	Language	
LAN	Languages	
LC	Library of Congress Call Number	
LCA	Alternative LC Call Number	
LDA	Local Data Element A	
LDB	Local Data Element B	
LDC	Local Data Element C	
LDD	Local Data Element D	
LDE	Local Data Element E	
LDF	Local Data Element F	
LDG	Local Data Element G	
LI	Library Identifier	
LIBC	Library Code	
LOC	Permanent Shelving Location	
LPR	Library of Congress Price	
LSI	Local System Identification Number	

XIII. DATA ELEMENTS cont.

MNEMONIC	STANDARD NAME	SUPER OR SUBELEMENTS
MDY	Individual Material Description	
ME-	Main Entry Superelement	-CA,-CF,-PN, -T,-UT
MECA	Main Entry-Corporate Name	
MECF	Main Entry-Conference Name	
MEI	Main Entry in Body of Entry Indicator	
MEPN	Main Entry-Personal Name	
MET	Main Entry-Title	
MEUT	Main Entry-Uniform Title	
MOD	Modified Record Indicator	
MS	MARC Status	
NA	Abstract or Annotation	
NAL	NAL Call Number	
NB	Notes-Bibliographic	
NBN	National Bibliography Number	
NBW	"Bound With" Note	
NC	Notes-Contents	
ND	Dissertation Note	
NG	Notes-General	
NLM	NLM Call Number	
NM	Notes-Incomplete Contents	
NP	Notes-Partial Contents	

XIII. DATA ELEMENTS cont.

MNEMONIC	STANDARD NAME	SUPER OR SUBELEMENTS
NUC	NUC Card Number	
OAAT	Other Added Entry-Corporate Name/Title	
OACA	Other Added Entry-Corporate Name	
OACF	Other Added Entry-Conference Name	
OAFT	Other Added Entry-Conference Name/Title	
OAN	Overseas Acquisitions Number	
OAPN	Other Added Entry-Personal Name	
OAPT	Other Added Entry-Personal Name/Title	
OATA	Other Added Entry-Added Title	
OAUT	Other Added Entry-Uniform Title	
OID	Operator Identification	
PD	Type of Publication Date Code, Date 1, Date 2	
PDQ	Print Data Queue Number	
PG	Pagination or Volumes	
-PN	Personal Name Subelement	ME-,OA-,RF-,RT-, SA-,SE-,SN-
PP	Place and Publisher	
PRI	Price	
PRO	Type of Procurement	
RCDM	Record Mask	

XIII. DATA ELEMENTS cont.

MNEMONIC	STANDARD NAME	SUPER OR SUBELEMENTS
RD	Removal Date	
REC	Record Type	
REP	Form of Reproduction Code	
RF-	Reference Entry Referred From Superelement	-PN,-CA,-CF,-SU,-T
RFCA	Reference Entry Referred from-Corporate Name	
RFCF	Reference Entry Referred from-Conference Name	
RFPN	Reference Entry Referred from-Personal Name	
RFSU	Reference Entry Referred from-Subject Entry	
RFT	Reference Entry Referred from-Title Entry	
RREC	Reference Record Type	
RS	Reference Structure Indicator	
RSTA	Reference Explanatory Entry Referred to-Corporate Name	
RSTF	Reference Explanatory Entry Referred to-Conference Name	
RSTP	Reference Explanatory Entry Referred to-Personal Name	
RSTS	Reference Explanatory Entry Referred to-Subject	

XIII. DATA ELEMENTS cont.

MNEMONIC	STANDARD NAME	SUPER OR SUBELEMENTS
RSTT	Reference Explanatory Entry Referred to-Title	
RSTX	Reference Structure Text	
RTAT	Reference Entry Referred to-Corporate Name/Title	
RTCA	Reference Entry Referred to-Corporate Name	
RTCF	Reference Entry Referred to-Conference Name	
RTFT	Reference Entry Referred to-Conference Name/Title	
RTPN	Reference Entry Referred to-Personal Name	
RTPT	Reference Entry Referred to-Personal Name/Title	
RTSU	Reference Entry Referred to-Subject Entry	
RTT	Reference Entry Referred to-Title Entry	
RTUT	Reference Entry Referred to-Uniform Title Entry	
SAAT	Subject Added Entry-Corporate Name/Title	
SACA	Subject Added Entry-Corporate Name	
SACF	Subject Added Entry-Conference Name	
SAFT	Subject Added Entry-Conference Name/Title	

XIII. DATA ELEMENTS cont.

MNEMONIC	STANDARD NAME	SUPER OR SUBELEMENTS
SAGN	Subject Added Entry-Geographic Name	
SAPN	Subject Added Entry-Personal Name	
SAPT	Subject Added Entry-Personal Name/Title	
SASU	Subject Added Entry-Topical Subject Heading	
SAUT	Subject Added Entry-Uniform Title	
SE	Series Added Entry Structure Indicator	
SECA	Series Added Entry-Corporate Name	
SECF	Series Added Entry-Conference Name	
SEPN	Series Added Entry-Personal Name	
SEST	Series Added Entry-Series Title	
SESV	Series Added Entry-Series Volume	
SEUT	Series Added Entry-Uniform Title	
SN	Series Note Structure Indicator	
SNCA	Series Note-Corporate Name	
SNCF	Series Note-Conference Name	
SNPN	Series Note-Personal Name	
SNST	Series Note-Series Title	

XIII. DATA ELEMENTS cont.

MNEMONIC	STANDARD NAME	SUPER OR SUBELEMENTS
SNSV	Series Note-Series Volume	
SNTI	Series Note-Tracing Indicator	
SRCE	Source of Reference	
SSR	Standing Search Request	
SST	Source and Status of Bibliographic Data	
-SU	Subject Heading-Topical Subelement	SA-,RF-,RT
SUP	Superintendent of Documents number	
SZ	Size	
-T	Title Subelement	ME-,RF-,RT-,TS-
TSRM	Title Statement-Romanized Title	
TSRT	Title Statement-Remainder of Title	
TSSB	Title Statement-Subtitle	
TST	Title Statement-Short Title	
TSTI	Title Statement-Tracing Indicator	
TSUT	Title Statement-Uniform Title	
-UT	Uniform Title Subelement	ME-,TS-,SA-,OA-
VARI	Copy Variation	
VOL	Volume Holdings	

XIII. DATA ELEMENTS cont.

An Explanatory Note

At the time the NETWORK function of BALLOTS was implemented, development was underway to convert BALLOTS files, input-update formats, display formats, and printed outputs to the full MARC II level for monographs. The current full-face BALLOTS system contained most of the data elements described in BOOKS: A MARC FORMAT. However, the BALLOTS system lacked the ability to handle many of the indicators and delimiters specified in the MARC II format. It also lacked several of the MARC II fixed field data elements.

In order to further the conversion of the entire BALLOTS system to full MARC and to allow public users the full MARC capabilities, the NETWORK function of line-by-line BALLOTS was designed to support the full MARC II format. All the data specified by the MARC II books format may be input, displayed, and output in machine-readable form under the NETWORK function. However, as this publication is issued, the BALLOTS program that converts MARC records to BALLOTS' internal record format has not yet been updated for all the MARC data elements, indicators, and delimiters. Nor is all this additional information included in BALLOTS' on-line Catalog Data File (CDF), In Process File (IPF), and MARC File (MRC). This discrepancy between what may be input on-line and what is maintained in BALLOTS files may cause some confusion for the user. It is hoped that the following points will help to clarify the situation.

1. Many data elements do not currently exist in the BALLOTS system. Examples include NA (Abstract or Annotation) and FIC (Fiction Indicator). These data elements may be input on-line and will appear in machine-readable outputs.

2. By the same token, these additional data elements do not appear on any display format except FULL. The other display formats were copied from those used in the pre-existing full-face BALLOTS functions and do not contain the new data elements.

3. The concept of an indicator as two characters that precede a data element's value and that give additional information about the value was added to the BALLOTS system with the NETWORK function. Again, these indicators may be input on-line but will not appear in an IPF, CDF, or MRC record until the full MARC format - ISBD development mentioned above is complete. One exception to this is MET (Main Entry-Title) or TST (Title Statement-Short Title), where the data element TSTI is used to generate a first indicator for TST.

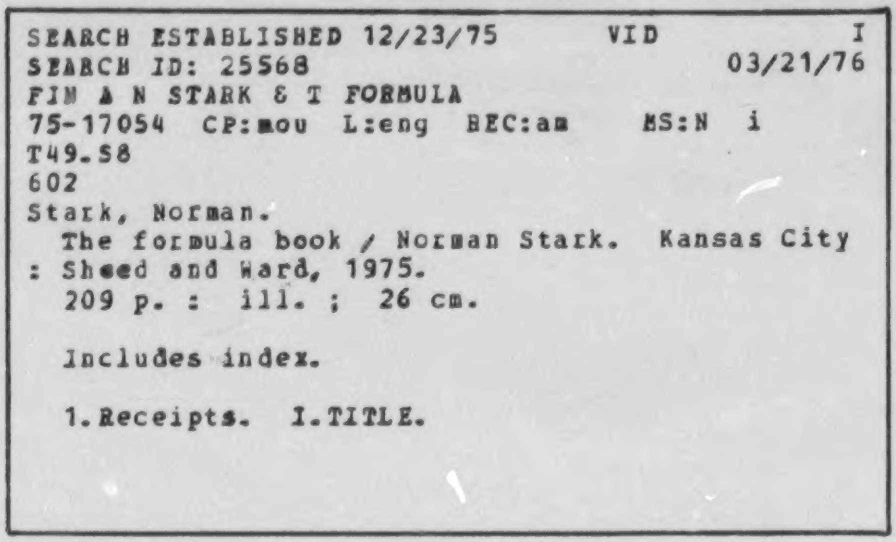
XIII. DATA ELEMENTS cont.

4. Similarly, the delimiter convention used by MARC--a dollar sign followed by a lower case alphabetic character, used to set off portions of a data element value--was added to the BALLOTS system with the NETWORK function. The only delimiter previously stored in BALLOTS files was the commercial "at" sign (@). Its use is explained in the appropriate descriptions in the BALLOTS Data Elements Notebook. It will be converted to the appropriate subfield delimiter in machine-readable outputs.

XIV. PRINTED OUTPUTS

In the SEARCH and NETWORK functions, two printed outputs are produced in consequence of standing search activity: the Matched Standing Search Request and the Purged Standing Search Request forms.

When a standing search request is matched with a new MARC record, a Matched Standing Search Request notice is produced.



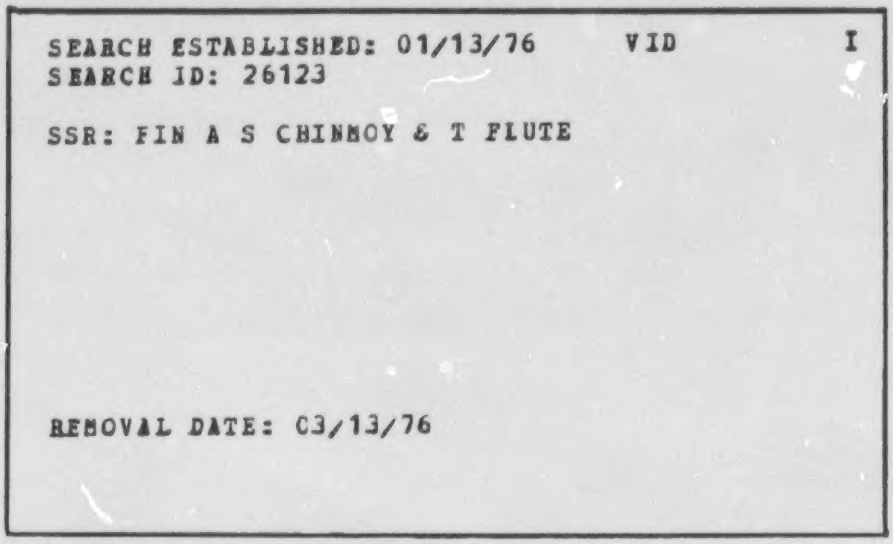
```
SEARCH ESTABLISHED 12/23/75       VID            I
SEARCH ID: 25568                          03/21/76
FIN A N STARK & T FORMULA
75-17054  CP:mou  L:eng  REC:am    MS:N  i
T49.S8
602
Stark, Norman.
  The formula book / Norman Stark.  Kansas City
: Sheed and Ward, 1975.
  209 p. :  ill. ;  26 cm.

  Includes index.

  1.Receipts.  I.TITLE.
```

Figure 4

If the time limit on the standing search is reached and no matching MARC record has been found, a Purged Standing Search Request slip is produced: the system then automatically purges the standing search request from the SSR File.



```
SEARCH ESTABLISHED: 01/13/76     VID           I
SEARCH ID: 26123

SSR: FIN A S CHINMOY & T FLUTE




REMOVAL DATE: C3/13/76
```

Figure 5

XIV. PRINTED OUTPUTS cont.

The standing search request program is run monthly, and matched and purged SSR notices are sent to network libraries monthly.

XV. TROUBLE REPORTING

As more use is made of the BALLOTS line-by-line system, more information will be added to this Guide for you to refer to when the system responds unexpectedly, or seems not to be responding to your use of it. At this stage of operations, you will most frequently want to call us for assistance as needed, and we will want you to report as fully and accurately as possible on any problems you encounter. This sort of interaction will promote the quickest solutions to any problems and will help us to improve the value of this Guide by showing us what it lacks.

A brief and incomplete list of possible causes of system malfunctioning would include the following:

- The terminal might be malfunctioning and require service.
- The acoustic coupler or modem could be turned off, or could be malfunctioning.
- The local telephone could be introducing noise from other extensions that could be confusing the computer.
- The TYMNET communications system might be making errors in transmitting your information to BALLOTS.
- The BALLOTS system might contain a program error that has gone undetected in testing.
- Finally, you might be attempting a step not logically possible, or in terms not acceptable to the system. This, in particular, is where the Guide should help you to correct the problem.

When you encounter some difficulty with the system, go over the following points first:

1. Is the equipment in proper working order as far as you can tell? That is, is the power switch of each component of the terminal station turned on, is the equipment plugged in, terminal operating in the proper mode setting, is the phone working, etc.?

2. Can you trace your actions in the Guide? That is, can you verify that you have proceeded according to the steps given there for logging on, setting system features, formulating search requests, etc.?

You may find the suggestions on telephone connections given in in Appendix A helpful in dealing with the TYMNET communications system.

In this review you may solve your problem. If not, once you are certain that the equipment is turned on properly and that you understand and are following the instructions in the Guide, then attempt to recreate the problem several times. Once you can recreate the problem (usually by repeating the commands and processing that led to the problem), you should fill out a Trouble Log form to report the problem to the BALLOTS Production Control and Maintenance staff. Figure 6 contains a sample of this form. (A number of blank Trouble Log forms will be sent to each user when the account to use BALLOTS is opened; more forms may be requested as needed.)

When filling out the Trouble Log form, please write clearly and precisely. Avoid ambiguous terms like "it" when referring to a screen format or command that does not seem to work properly. Itemize the steps that led to the problem, so that a programmer or systems analyst can recreate the problem from your Trouble Log form. If a problem is so complex as to defy an analytical description restricted to one page, then use additional pages to describe the problem. If you can find patterns in complex problem areas, point them out. When in doubt, be verbose. Write down EVERYTHING that appears on your terminal screen. If possible, include hard copy from the printer.

When you have completed the Trouble Log form, mail it the same day to:

Production Control and Maintenance Unit
BALLOTS Center
SCIP - Willow
Stanford University
Stanford, CA 94305

If you are unable to continue using the system because of the problem, or you feel it is unwise to let any time go by in the reporting process, fill out the Trouble Log form and then also telephone the BALLOTS Center.

The telephone number is 415/497-3741. When you call, please be sure to identify yourself as a BALLOTS network user and to specify your library; ask to report a trouble log item to someone in the BALLOTS Production Control and Maintenance unit. This will enable us to respond most efficiently to your call.

In some cases, the BALLOTS programs may detect an error that leads to a condition called a "PANIC INTERRUPT". If this happens, you will see the following sequence on your terminal screen:

```
PANIC INTERRUPT.
MESSAGE LINE CONTAINS: <additional information
  may appear here> NO ACTIVE FILE
  DUMP COMPLETE.  JOB <assorted information appears
  here>
-RETURN TO WYLBUR.
COMMAND?
```

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BALLOTS TROUBLE LOG ENTRY

			NUMBER:
USER: Lennie Stovel	TERMINAL: A44	DATE: 6/6/75	TIME: 10:15 a.m.
RECORD KEY: 1384925	BATCH:	ON-LINE: ✓	FILE: CDF

SEQUENCE OF EVENTS:

function network
li I
-? fin a g.h reed and title forward march/res
-NONE IN MRC.
-RESULT: 3 BOOK(S) IN REF.
-? dis lon/dis

PROBLEM DESCRIPTION:

PANIC INTERRUPT.
MESSAGE LINE CONTAINS: IN REF
DUMP COMPLETE. JOB UNKBT003 ON INTRDR1
-RETURN TO WYLBUR.
COMMAND?
(after logging on again was able to recreate panic - called BALLOTS Center to tell them this -)

DOES REFERENCE MANUAL COVER THIS PROBLEM? yes

IF YES, IN WHAT SECTION? Section XI

IS IT COVERED ADEQUATELY?

IF NOT, IN WHAT SECTION SHOULD IT BE?

DID YOU CALL BALLOTS? (415/497-3741) yes

To be filled in as applicable

RECEIVED ON:

ASSIGNED TO:

DATE ASSIGNED:

COMMENT:

DATE COMPLETED:

COMMENT:

FIGURE 6

PRODUCTION DATE:

PRODUCTION VERSION:

COMMENT:

To be filled in by Project BALLOTS staff only

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XV. TROUBLE REPORTING cont.

At this point, IMMEDIATELY fill out a Trouble Log form. Include the commands that you gave prior to the PANIC INTERRUPT, as far back as you can remember them. Include the ID number, L. C. card number, and/or the PDQ number of the record you are working with. Be especially alert to anything unusual in the data you are displaying or inputting. Describe anything unusual you may see displayed on the screen. Include any information that appears following "MESSAGE LINE CONTAINS:", except the "NO ACTIVE FILE" message. Include the job number. Since it is difficult to diagnose the problem after the fact and in a remote location, please include ANY information that you feel will help the programmers solve the problem. Mail the Trouble Log entry to BALLOTS.

You may then re-enter the BALLOTS system by typing "call ballots . This is exactly like entering BALLOTS after having newly logged on. That is, you must set the function and begin your searching again. The system will not remember what you were doing when the PANIC INTERRRUPT occurred.

If you wish, when you have re-entered the system you can try again the processing during which you received a PANIC INTERRUPT. If you receive a second PANIC at the same stage in your activity, note this on the Trouble Log entry before you mail it off. You may also call the BALLOTS Center to describe this pattern found. You should then stop attempting the sequence that led to the PANIC and go on to other on-line work.

A particularly serious system malfunction is the program "loop". In this situation the program performs an action repeatedly, without stopping. The serious aspect of this situation is that in the process the program is using up machine resources. New versions of BALLOTS are thoroughly tested before being elevated to production status, and no program loop has ever been encountered in a production version of the system. Thus, the probability of your experiencing this is quite low.

Loops appear in two forms. In the first, the program sends the same data to the terminal repeatedly. If this situation occurs, the best action is to hang up the telephone and and log on all over again. The second kind of loop, a processor loop, results in no response at the terminal. Since other problems can cause poor response time, this kind of loop is difficult to detect. One way to detect a processor loop is to hit the BREAK key twice. The system should respond "SESSION BREAK AT <location number> ATTENTION (MULTIPLE ATTENTIONS)". If the system does NOT

XV. TROUBLE REPORTING cont.

respond rapidly, you are NOT in a processor loop. Simply type "go <carriage return>" when the system does respond, in order to continue processing. If the system response time is rapid, however, type "show time <carriage return>". If the number of ORVYL CPU seconds used is more than 15 per hour of elapsed time, you probably ARE in a processor loop. Copy the SESSION BREAK message and call the BALLOTS Production Control and Maintenance Unit (415/497-3741) for assistance at once.

Again, loops are rare but serious occurrences. It is unlikely that you will encounter any. If you think you have, the important step is to note the circumstances and telephone the BALLOTS Center at once.

APPENDIX A

TYMNET TERMINAL GUIDELINES

The procedure for logging in through TYMNET with a Zentec terminal is described in Section IV, "Logging On". This appendix contains a general discussion of the terminals supported by TYMNET and Stanford besides the Zentec; advice on ensuring a stable telephone connection; directions on how to log in through TYMNET on different types of terminals; and a list of error conditions and messages.

Terminal Categories and Their Identification Characters

Five categories of terminals are supported by both the current TYMNET software and the Stanford IBM 370 model 168 computer on which BALLOTS operates. These categories are listed below following the character that is keyed at log-in for each category in order to identify it to the TYMNET communications system.

A
-

Upper case or Control A . [illegible] work. Transmission occurs at 30 cps in bo[illegible] ET provides no special delay char[illegible] Infoton, Zentec 9002B, and seve[illegible] to this class, as well as any Di[illegible] minals.

NOTE

AS THE GUIDE GOES TO PRESS (4/5/76), THE TERMINAL IDENTIFICATION CHARACTERS LISTED ON PP. 169-170 CANNOT BE USED AS DESCRIBED.

Upper Case or Con[illegible] Transmission occurs at 30 cps in both directions. [illegible] have hit the carriage return, a delay, of the time [illegible] takes for the terminal to print ten characters or less, may occur before any printable character is issued. Gulton, Syner-Data, and other terminals using the Univac printer belong to this class.

D
-

Transmission occurs at 10 cps in both directions, and TYMNET provides no special delay characters. The Model 33 Teletype is the typical member of this class.

APPENDIX A cont.

E

Transmission occurs at 30 cps in both directions. Used for thermal printer terminals including the TYMSHARE 1030, Execuport, Texas Instruments, and DigiNet terminals. Also good for most video terminals with thermal printers attached, including CDC and Hazeltime video terminals. 30 cps hard copy terminals may be put in this class. There is a delay in printing characters after the carriage return of about the time it takes to print seven characters.

G

Upper case or Control G only. Transmission occurs at 30 cps in both directions. If a line is empty, a delay of the time it would take to print five characters occurs after the line feed. If the line contains characters, a delay of the time needed to print 21 characters occurs. If the line already contains 21 or more characters, a delay of the time needed to print five characters occurs after the line feed. Memorex and GE TermiNet 300 belong to this class.

Carriage Return

134.5 bps, 14.8 cps in both directions, Correspondence code or EBCDIC. The IBM 2741, Datel, Dura, Novar, etc. belong to this class. These terminals are the most difficult for TYMSHARE to identify. The following procedure has been found to be consistently effective.

1. Turn on the terminal.
2. Call the computer and place the telephone handset in the coupler.
3. If the terminal is equipped with the check feature, hold down the check/reset button. This feature should be disabled if possible, because it is a nuisance and has no useful function.
4. Turn on the coupler and wait one second; if holding down the check/reset button, wait eight seconds.
6. Hit the carriage return; then type in your response to "PLEASE LOG IN", etc. If the keyboard unlocks without typing "PLAN IS ONLINE", hit the carriage return again for an EBCDIC terminal, or type "cor" and then hit the carriage return for a Correspondence code terminal.

APPENDIX A cont.

Initial Steps to Take to Prevent Problems with the Phone System Itself (Which Can Cause Bit Errors or Disconnections)

1. Use a direct outside phone.

   If you go through a switchboard (dial 9 for an outside line or ask the operator to give you an outside line) you may experience several problems:

   - Electrical noise from the switchboard may cause errors in data transmission or even a disconnection.
   - The operator may cut in by mistake to put a call through.
   - The operator may accidently disconnect you.

2. Make sure the phone you use does not have an extension. Someone could accidently pick up the extension during your session.

3. If you know that the quality of phone service in your area is poor, you may need to use a Bell 103 or 113 or some other brand of modem rather than an acoustic coupler. For long-term rather than temporary installations, a hardwired modem is generally preferable to an acoustic coupler.

4. If you are using an acoustic coupler, keep it away from the terminal if possible, and if the coupler has a lid, keep it closed. Ambient noise can leak into an acoustic coupler, causing errors in transmission of data. It is advisable to dial TYMNET and place the telephone handset in the acoustic coupler before you turn on the coupler.

5. When your terminal is not in use, replace the phone on the hook. If you leave the phone in the coupler constantly, crystallization of the speaker and receiver can occur, reducing the signal strength.

6. You may want to ensure that there is a piece of cotton inside the telephone handset, behind the speaker and receiver coverings. The telephone company will probably have already done this, to keep speaker and receiver noises from interfering with each other. This should help to prevent interference of data transmission and reception.

APPENDIX A cont.

To Connect A Terminal to the Stanford Computer

1. Dial the proper TYMNET access node. (See Appendix C, "TYMNET Nodes and Telephone Numbers".)

2. When you hear the tone, place the telephone handset in the coupler and switch the coupler on, or if you are using a Bell-type modem, press or pull the "data" button. Double-check that all equipment is turned on and all switches set for proper operation.

3. If operation is at 30 cps, TYMNET will respond with the message: "please type your terminal identifier". If operation is at some other speed, this message will appear as random characters.

4. After you have typed the identification character, one or two lines of output should appear. These may appear to be random characters or else will be recognizable as the node number dialed and the port number on that node. In any event, the last item to be received will be the words: "please log in:". Hitting the carriage return now will cause TYMNET to prompt "user name:". You may key your TYMNET user name either immediately after "please log in:" or after hitting the carriage return and receiving the specific prompt to do so. If your terminal or acoustic coupler is running in half-duplex, you must hit the backspace key at some stage in keying your user name; then, when you have completed the user name, hit the carriage return.

5. On the next line, TYMNET will now prompt you with "password:" to key in your TYMNET password. After you have done so and hit the carriage return, the message "PLAN IS ONLINE" signals that you have been successfully connected with the Stanford computer. That computer will now prompt you for the necessary information to use BALLOTS (see Section IV).

APPENDIX A cont.

Error Conditions and Messages

The following is a list of typical symptoms and messages the user may encounter while using TYMNET, with a description of the message and suggested action:

Fast busy signal - after having dialed the last digit of the rotary number you immediately hear a rapid busy signal. This means that the phone company's local facilities are overloaded, and you will have to dial again after a few moments. If this is a recurring problem, contact your telephone company's Communications Maintenance unit; an evaluation should be made of the facilities.

Normal busy - this is the more common busy signal, and indicates that TYMNET has reached its capacity for logging on users. If this is a recurring problem, perhaps more low-speed dial-up ports are needed. Keep a record of the dates and times of these busy signals and contact the BALLOTS Production Control and Maintenance Unit if you feel the problem is a real one. (See Section XV for the Unit's phone number and address.)

Ringing, no answer - if possible, try another TYMNET number in the same calling area (see Appendix C); then, if the situation is unchanged, call the BALLOTS Production Control and Maintenance Unit to report the problem.

Ringing stops (answered), but no tone - dial again; if the situation is unchanged, call the BALLOTS Production Control and Maintenance Unit to report the problem.

Ringing stops (answered), tone audible, no communication (nothing displayed at terminal) - check terminal and coupler switch settings and try again. If the symptom remains, introduce new equipment, i.e., coupler, terminal, different phone, etc. If this doesn't remedy the problem, contact the BALLOTS Production Control and Maintenance Unit.

No "PLEASE LOG IN" - verify terminal identification character you are using and try again. If problem persists, call the BALLOTS Production Control and Maintenance Unit.

"PLEASE LOG IN:" displayed, but no response after entering user name [carriage return] - possibly a TYMNET control problem. To verify this, hang up and dial again. In response to "PLEASE LOG IN:" hit the carriage return. If there is no prompting for "USER NAME:", there is a problem, and you should call the BALLOTS Production Control and Maintenance Unit to report this.

"ERROR, TYPE USER NAME:" - retype correct user name.

"ERROR, TYPE PASSWORD:" - retype correct password.

APPENDIX A cont.

"PLAN IS ONLINE" - indicates that the TYMNET communications system has established contact between the user and the Stanford 370/168 computer. ("PLAN" stands for "Public Library Automation Network", the group of seven California public libraries for whom the line-by-line version of the BALLOTS system was first implemented in June 1975.) TYMNET communications charges begin for a session as soon as this connection has been made. Following this message, you should be prompted by the Stanford computer for log-on information (terminal i.d., account, keyword). If you do not receive such prompts, this may mean that the Stanford computer is not currently working. Hang up and try logging in again through TYMNET; if you still receive no requests for log-on information from Stanford, call the BALLOTS Production Control and Maintenance Unit.

"DROPPED BY HOST SYSTEM" - indicates that you have logged off and/or that the 370/168 computer has disconnected you. If you are done, hang up the phone. If you were dropped unexpectedly, try logging in again.

"PLEASE LOG IN:" in middle of session with no "DROPPED BY HOST SYSTEM" preceding - try logging in again. If this fails, call the BALLOTS Production Control and Maintenance Unit.

"SYSTEM ERROR ON PORT #<number>" followed by an optional message - TYMNET attempted to attach your terminal to a 370/168 computer access point that would not respond. If this happens, call the BALLOTS Production Control and Maintenance Unit, since it may signal a necessary repair or intervention in the communications equipment installed on the Stanford campus.

"PLEASE TRY AGAIN" - This message should not occur. If it does, check the correct user name and try to log in again. If the same message appears again, call the BALLOTS Production Control and Maintenance Unit to report the problem.

"HOST <number> DOWN" - this message should not occur; if it does, call the BALLOTS Production Control and Maintenance Unit to report it.

"OUT OF CHANNELS" - this means that TYMNET has run out of circuits to connect you to Stanford. Hang up and try logging in again. If the situation is unchanged, call the BALLOTS Production Control and Maintenance Unit to report the problem.

"ALL PORTS BUSY" - this means that there are no available computer access points at Stanford (all are in use connecting other terminals to the computer). Hang up and try logging in again later; if the problem recurs frequently, call the BALLOTS Production Control and Maintenance Unit to report the problem.

APPENDIX A cont.

"SYSTEM UNAVAILABLE" or "SYSTEM UNAVAILABLE THROUGH NET" - this means that TYMNET cannot connect you to the Stanford computer. This message may appear in addition to the "OUT OF CHANNELS" message or by itself. If it appears by itself, it may mean that the Stanford computer is not currently working. Try again in a while or check this with the BALLOTS Production Control and Maintenance Unit.

APPENDIX B

THE ZENTEC TERMINAL STATION

The BALLOTS PLAN terminal station consists of three components interconnected with cables. These are: (1) a Zentec 9002B CRT (cathode ray tube) video terminal; (2) a Qume printer; and (3) an acoustic coupler. Each of these components must be turned on properly before you can use the terminal station.

The first step is to turn on the power to each of the components. The Zentec terminal power switch is located on the front of the terminal chassis, on the left, below the overhanging display screen. This switch can be hidden by the moveable terminal keyboard. The Qume printer power switch is located on the back panel of the printer, at the bottom of a column of switches. On the Livermore acoustic coupler, used by the PLAN libraries, the power switch is located on the back of the coupler in the center, above the plug.

Using the Zentec Terminal

Once each component has been turned on, put the terminal into the proper mode of operation before dialing the system. After about forty seconds, the appearance of characters in line 25 on the CRT screen will indicate that the terminal is warmed up. Hit the RESET key at the top left of the keyboard, which will cause the 25th line to read "REP FORM". (The 25th line of the CRT screen will always indicate the terminal's mode of operation; no other information will ever appear in this line.)

Now hit the MODE key (a blue key located in the key group between the numeric key pad on the far right and the typewriter keyboard pad). The 25th line will now read "CONTROL". Once in the "CONTROL" mode, hit function key "5"--the numbered function keys are the blue rectangular keys located on the top right of the keyboard. This will cause the 25th line to read "TTY-HD", an abbreviation for "teletype half duplex mode". All interactive transactions (e.g., log-on, commands to the system, displays of data, input of data, etc.) must be performed in the TTY-HD mode of operation. Commands not issued from the TTY-HD mode will not be transmitted to the host computer, and consequently the system will not respond to them.

Once in the TTY-HD mode the terminal can be connected with the BALLOTS system through TYMNET (see Section IV, "Logging On").

APPENDIX B cont.

Zentec Function Keys and Their Usage

The function keys (the blue keys located at the top of the keyboard) are used to set the terminal mode of operation (as indicated above), to control the operation of the printer, and to provide other controls on the terminal.

There are two ways to print data from the screen. To print the contents of the screen, leave TTY-HD mode (thereby temporarily breaking interactive connection to the Stanford computer) and enter CONTROL mode. Do this by hitting the MODE key so that "CONTROL" appears in line 25 of the screen. Once in CONTROL mode, hit the function key "2". The twenty-fifth line on the screen contains "PRINT" during this activity. Once the contents of the screen have been printed, the 25th line will again read "REP FORM". Return to TTY-HD mode (by depressing the MODE key to reach CONTROL mode, and then depressing function key "5") before continuing interactive use of the system. If you fail to reset the mode to TTY-HD, the system will ignore all keyboard activity. This method of printing causes the terminal to print the data already on the screen, starting at the top of the screen.

The second way to print data from the screen is to print it as it appears on the screen, by depressing the blue function key "1" while in TTY-HD mode. All data will now be printed out simultaneously with its display on the screen. To stop this sort of printing, depress the blue function key "2".

Function key "4" in the TTY-HD mode is the BREAK or ATTENTION key. This key is used to interrupt the system in the middle of an action, or to cancel a command before it can be acted on. It causes the system to prompt you for another command. CAUTION: if you hit function key "4" repeatedly in succession, the system may respond with "SESSION BREAK AT <location number>, ATTENTION (MULTIPLE ATTENTIONS)". The system will then type "COMMAND?" OR "?" If this should with happen, type "go" and hit the carriage return to reenter BALLOTS.

The RESET function key should be used after the terminal is turned on to clear out any false terminal instructions that may have occurred as the power was turned on. Additionally, if the terminal or printer "hangs" or refuses to operate properly (i.e., if the cursor will not move or the mode changes cannot be accomplished), hit the RESET key. Hitting the RESET key always returns the terminal to REP FORM mode. (The Qume printer also receives reset instructions from the Zentec terminal RESET key. However, there is also a white button on the back panel of the printer that will reset the printer alone.) Then return to TTY-HD mode by hitting MODE and then function key "5".

APPENDIX B cont.

The ERASE DISPLAY function key will clear the CRT screen of any data displayed there, with the exception of the 25th line.

The ERASE END DISPLAY function key will clear the CRT screen of any data from the cursor to the end of the screen, with the exception of the 25th line.

The ERASE END LINE function key will clear the CRT screen of any data from the cursor to the end of the line the cursor is on.

The ALL CAPS function key is best avoided; note that if you accidently press it and lock it in place, everything you key will be in upper case until you again press this key and unlock it.

A number of function keys, both blue ones at the top and right of the keyboard and beige ones at the far left, should be avoided. Starting on the left and proceeding across the top of the keyboard and down into the blue keys on the right, the keys to be avoided are: AUTO BACK TAB, AUTO TAB, ESC, CTRL, BACK TAB, DELETE, ERASE FIELD, DELETE LINE INSERT, and all the keys in the blue pad between the typewriter keyboard pad and the numeric keyboard pad on the right except MODE. (These are: PAGE with an arrow pointing up, PAGE with an arrow pointing down, an arrow to the left, INSRT/REPL, an arrow pointing up, HOME, an arrow pointing down, SCROL with an arrow pointing up, SCROL with an arrow pointing down, an arrow pointing to the right, and FORM/EDIT.)

In addition to these keys-to-be-avoided, certain numbered function keys should not be used in certain modes. Specifically, do not hit function key "3" when you are in TTY-HD mode, and do not hit function key "1", "3", or "4" when you are in CONTROL mode. And, finally, the top center rank of blue keys should not be used in CONTROL mode.

If one of these prohibited keys is hit, the results are unpredictable. Whatever happens, hit the RESET key and go through the initial process described under "Using the Zentec Terminal" in order to get back to normal.

Specified Settings of the Zentec Terminal Station

Once the terminal station components have been installed, do not change any of the switch settings (most of the switches are on the back of the components). However, if the settings are altered and must be reset, following is a list of the proper switch settings.

APPENDIX B

ZENTEC 9002B CRT TERMINAL:

PARITY - EVEN
BAUD RATE - 300
VOLUME - (this controls the loudness of the audible keyboard feedback; set loudness as desired)
CONTRAST - (set as desired; if the letters appear out of focus, they may be made clearer by adjustments to the contrast and brightness)
BRIGHTNESS - (set as desired; the raster--the area backing any characters displayed--should not be visible)

QUME PRINTER:

PITCH - 10
AUTO LF - OFF

LIVERMORE ACOUSTIC COUPLER:

DUPLEX - FULL

The Qume Printer

The Qume printer will only operate when all three of the lights on the front panel are on. (However, many of the Qume printers do not have these front panel lights.) If the Qume printer will not operate, reset the printer, which can be done in two ways. The first way is simply to press the white RESET button that is directly above the power switch on the back panel. The second way is to hit the RESET function key on the terminal, which will reset both the terminal and the printer. If neither of these actions works, see Section XV, "Trouble Reporting".

APPENDIX C

TYMNET NODES AND TELEPHONE NUMBERS AS OF MARCH 24, 1976:

CITY	STATE	TYPE	TELEPHONE
Phoenix	Arizona	C	602/249-9261
Brussels	Belgium	E	640-0215
Cupertino	California	E	408/996-2200
Cupertino	California	C	408/996-1000
El Segundo	California	C	213/640-1570
Los Angeles	California	C	213/629-1561
Los Angeles	California	E	213/683-0451
Mountain View	California	E	415/965-8815
Newport Beach	California	C	714/540-9560
Oakland	California	E	415/465-7000
Oxnard	California	C	805/487-0482
Palo Alto	California	E	415/326-7015
Palo Alto	California	C	415/494-3900
Riverside	California	C	714/825-9372
Sacramento	California	E	916/441-5450
San Diego	California	C	714/291-8700
San Francisco	California	C	415/391-9325
San Jose	California	E	408/446-4850
San Jose	California	C	408/257-9050
Calgary	Canada	C	403/263-2072 (10 cps)
Calgary	Canada	C	403/263-2006 (14.8 cps)
Calgary	Canada	C	403/263-0487 (30 cps)
Edmonton	Canada	C	403/452-7014
Toronto	Canada	C	416/863-6202 (30 cps)
Toronto	Canada	C	416/863-6277 (14.8 cps)
Toronto	Canada	C	416/863-6252 (10 cps)
Vancouver	Canada	C	604/688-4338 (10 cps)
Vancouver	Canada	C	604/688-4838 (14.8 cps)
Vancouver	Canada	C	604/688-9811 (30 cps)
Denver	Colorado	E	303/458-7921
Darien	Connecticut	C	203/655-8931
Hartford	Connecticut	C	203/568-2610
Washington	DC	E	703/521-6520
Washington	DC	C	703/841-9560
St. Petersburg	Florida	C	813/536-7823
Tampa	Florida	C	813/223-3787
Paris	France	C	602-55-00
Paris	France	C	602-55-00
Paris	France	E	260-36-35
Atlanta	Georgia	C	404/659-6670
The Hague	Holland	C	46-97-61
Chicago	Illinois	E	312/346-4961
Chicago	Illinois	C	312/368-4607

APPENDIX C cont.

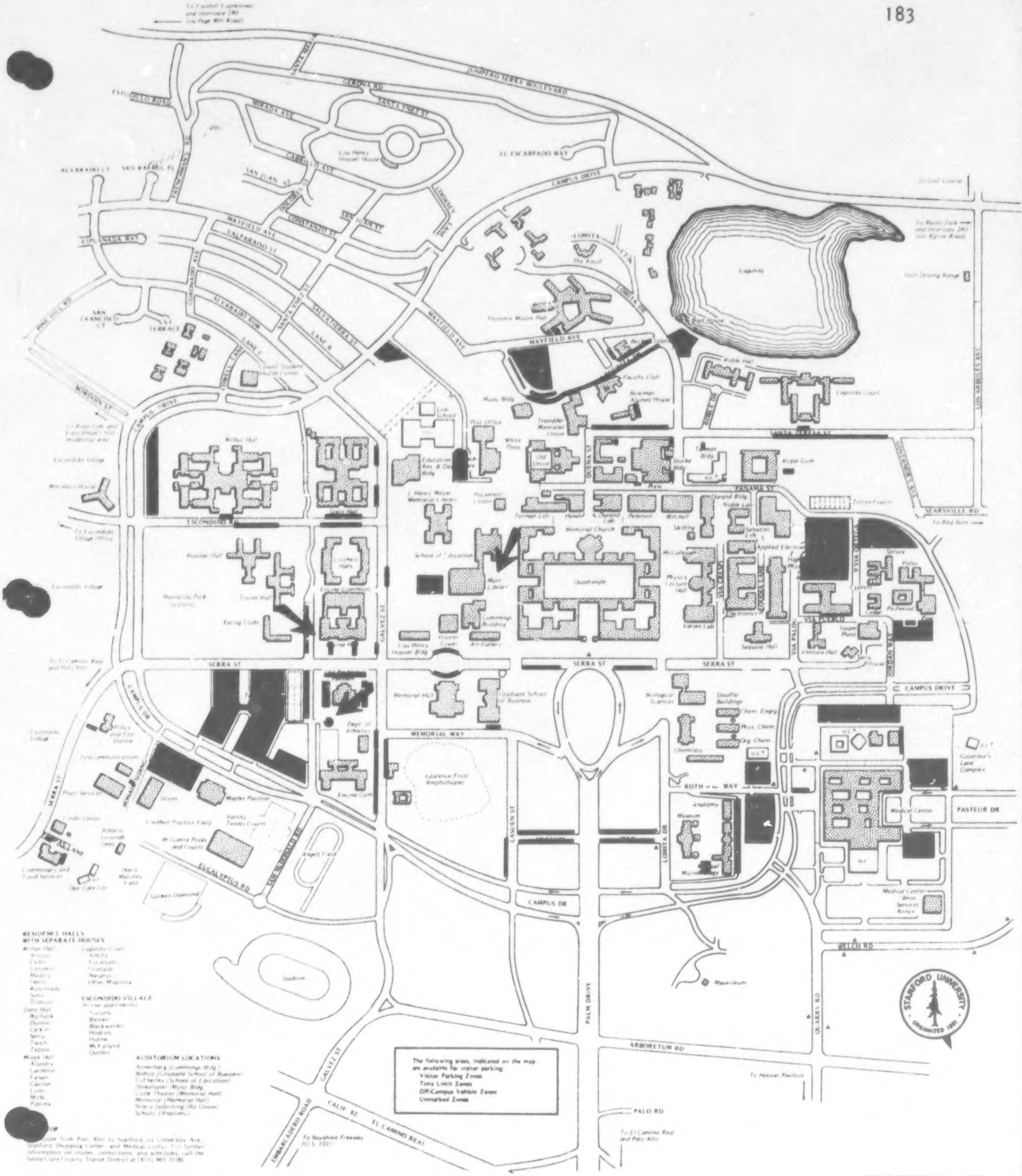
Freeport	Illinois	C	815/232-2186	(10 cps)
Freeport	Illinois	C	815/232-2181	(30 cps)
Des Moines	Iowa	C	515/280-9600	
Wichita	Kansas	C	316/265-7781	
Baton Rouge	Louisiana	C	504/927-6400	
New Orleans	Louisiana	C	504/586-1071	
Baltimore	Maryland	C	301/547-8100	
Boston	Massachusetts	C	617/964-3900	
Boston	Massachusetts	E	617/964-3925	
Cambridge	Massachusetts	E	617/491-5476	
Detroit	Michigan	C	313/522-6380	
Detroit	Michigan	C	313/963-3388	
Kalamazoo	Michigan	C	616/385-3150	
Minneapolis	Minnesota	C	612/854-6659	
Kansas City	Missouri	C	816/421-7444	
St. Louis	Missouri	C	314/421-5110	
Durham	North Carolina	C	919/549-0441	
Englewood Cliffs	New Jersey	C	201/894-8250	
Union	New Jersey	E	201/964-3801	
Wayne	New Jersey	E	201/785-4777	
Buffalo	New York	E	716/856-1400	
New York	New York	C	212/750-9433	
New York	New York	E	212/750-9445	
New York	New York	E	212/551-9322	
New York	New York	C	212/532-7615	
New York	New York	C	212/344-7445	
Rochester	New York	C	716/546-1410	
Syracuse	New York	E	315/437-7111	
Cincinnati	Ohio	C	513/621-7460	
Cleveland	Ohio	C	216/888-3900	
Columbus	Ohio	C	614/421-7270	
Oklahoma City	Oklahoma	C	405/947-0561	
Portland	Oregon	C	503/224-0750	
Philadelphia	Pennsylvania	C	215/561-6120	
Pittsburgh	Pennsylvania	C	412/765-3511	
Valley Forge	Pennsylvania	E	215/666-9190	
West Columbia	South Carolina	C	803/796-9710	
Lausanne	Switzerland	E	(21)25-66-34	(30 cps)
Lausanne	Switzerland	E	(21)25-43-57	(10 cps)
Dallas	Texas	E	214/638-5800	
El Paso	Texas	C	915/544-9590	
Houston	Texas	C	713/785-4411	
Houston	Texas	C	713/785-4420	
Midland	Texas	C	915/683-5646	(30 cps)
San Antonio	Texas	E	512/734-7381	
Seattle	Washington	C	206/622-7930	
Madison	Wisconsin	C	608/221-4211	(30 cps)
Milwaukee	Wisconsin	C	414/257-3482	

APPENDIX D

MAP OF STANFORD UNIVERSITY CAMPUS

Following is a map of the Stanford Campus. Arrows mark the location of the BALLOTS Center offices, the Main Library, and Encina Hall, location of the 370/168 computer.

STANFORD UNIVERSITY


To Foothill Expressway and Interstate 280 (via Page Mill Road)
JUNIPERO SERRA BOULEVARD
GERONA RD
SANTA YNEZ ST
MIRADA AVE
Lou Henry Hoover House
CABRILLO AVE
SAN JUAN ST
EL ESCARPADO WAY
CAMPUS DRIVE
MAYFIELD AVE
VALPARAISO ST
ESPLANADA WAY
ALVARADO CT
ALVARADO ROW
SALVATIERRA ST
LOMITA
The Knoll
Lagunita
Boat House
Florence Moore Hall
To Menlo Park and Interstate 280 (via Alpine Road)
Golf Driving Range
To Golf Course
Roble Hall
Lagunita Court
Faculty Club
Bowman Alumni House
Music Bldg.
Law School
Post Office
Tresidder Memorial Union
White Plaza
Old Union
Storke Bldg.
Press
Roble Gym
Tennis Courts
SANTA TERESA ST
PANAMA ST
SEARSVILLE RD
To Red Barn
LOS ARBOLES AVE
Wilbur Hall
Stern Hall
Escondido Village
ESCONDIDO RD
Education Res. & Dev. Bldg.
J. Henry Meyer Memorial Library
Placement Center
Terman Lab
Memorial Church
Quadrangle
Main Library
School of Education
Physics Lecture Hall
Varian Lab
Applied Electronics
Sequoia Hall
Ventura Hall
Steam Plant
Branner Hall
Toyon Hall
Crothers Hall
Manzanita Park (trailers)
Lou Henry Hoover Bldg.
Hoover Tower
Art Gallery
Cummings Building
SERRA ST
Memorial Hall
Graduate School of Business
Biological Sciences
Stauffer Buildings
Chem. Engr.
Phys. Chem.
Org. Chem.
Chemistry
Dept. of Athletics
MEMORIAL WAY
Laurence Frost Amphitheater
Encina Gym
Maples Pavilion
Police and Fire Station
Telecommunications
Plant Services
Varsity Tennis Courts
deGuerre Pools and Courts
Football Practice Field
Angell Field
Sunken Diamond
Day Care Ctr.
Commissary and Food Services
EUCALYPTUS RD
CAMPUS DR
ROTH WAY
Anatomy
Museum
Microbiology
Medical Center
PASTEUR DR
Governor's Lane Complex
Medical Center Services Annex
WELCH RD
Stadium
Mausoleum
PALM DRIVE
QUARRY RD
ARBORETUM RD
To Hoover Pavilion
PALO RD
To El Camino Real and Palo Alto
To Bayshore Freeway (U.S. 101)
EL CAMINO REAL
CALIF. 82
EMBARCADERO ROAD
GALVEZ ST
STANFORD UNIVERSITY ORGANIZED 1891

RESIDENCE HALLS
WITH SEPARATE HOUSES

Wilbur Hall
  Arroyo
  Cedro
  Junipero
  Madera
  Otero
  Rinconada
  Soto
  Trancos
Stern Hall
  Burbank
  Donner
  Larkin
  Serra
  Twain
  Zapata
Moore Hall
  Alondra
  Cardenal
  Faisan
  Gavilan
  Loro
  Mirlo
  Paloma

Lagunita Court
  Adelfa
  Eucalypto
  Granada
  Naranja
  Olivo-Magnolia

ESCONDIDO VILLAGE
(High-rise apartments)
  Abrams
  Barnes
  Blackwelder
  Hoskins
  Hulme
  McFarland
  Quillen

AUDITORIUM LOCATIONS

Annenberg (Cummings Bldg.)
Bishop (Graduate School of Business)
Cubberley (School of Education)
Dinkelspiel (Music Bldg.)
Little Theater (Memorial Hall)
Memorial (Memorial Hall)
Nitery (adjoining Old Union)
Schultz (Anatomy)

The following areas, indicated on the map, are available for visitor parking:
  Visitor Parking Zones
  Time Limit Zones
  Off-Campus Vehicle Zones
  Unmarked Zones

[illegible]OP

[illegible]oute from Palo Alto to Stanford via University Ave., Stanford Shopping Center, and Medical Center. For further information on routes, connections, and schedules, call the Santa Clara County Transit District at (415) 965-3100.

* Construction scheduled to begin January 1975

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APPENDIX E

GUIDELINES FOR TERMINAL SELECTION

The Stanford Center for Information Processing (SCIP) can support communications with computer terminals of various types and manufacture. The BALLOTS system can interact with each type of terminal that the Stanford computing system supports. However, certain types of terminals and certain configurations are better suited for use with BALLOTS than others.

The Stanford IBM 370 model 168 computer located at Encina Hall, Stanford Campus, can support the following:

A. ASCII terminals operating at 110, 300, or 1200 baud.

B. EBCDIC terminals operating at 134.5 baud.

C. Sanders 804 terminals using the Stanford control program.

Although SCIP uses IBM equipment, it cannot currently handle 3270-compatible communications terminals. SCIP also cannot handle 15-character-per-second (150 baud) ASCII terminals. This means that model 37 teletypes cannot be used to access BALLOTS.

The Stanford computers can accept terminals that work with the ASCII, EBCDIC, Correspondence, and APL character sets. In interacting with BALLOTS, however, the APL character set is inappropriate and should not be used. Each of the other three character sets may be used in accessing BALLOTS if installed on terminals at appropriate speeds. That is, ASCII may be used at 110, 300, and 1200 baud, and EBCDIC and Correspondence codes may be used at 134.5 baud. Terminals with the ASCII code set and, in particular, terminals that support each of the 96 ASCII graphic characters, are recommended by the BALLOTS project. The BALLOTS files contain examples of all the 96 graphics (except DEL); thus, a terminal that supports all of those characters would be most useful. However, terminals that support ASCII subsets may be used provided the terminal can receive all 96 graphics without difficulties.

Terminals that can handle all 96 ASCII graphics include the GE and Western Union Terminet, and all the Diablo-based and Qume-based hard copy terminals. CRT terminals that support all 96 graphics include the Zentec, the Tektronic 4023, the DataPoint 2200, the Lear-Siegler ADM2, and the Teletype model 40 if configured for a speed acceptable to Stanford. The Hazeltine 2000 terminal can be used; however, some BALLOTS records, notably those for the Meyer Library, contain the tilde character, which causes some minor difficulties on that particular terminal.

APPENDIX E cont.

Terminals that provide only the upper-case ASCII characters can be used if the result is acceptable to the user. The use of such terminals is not recommended for installations that will be adding or updating records for any purpose. The use of EBCDIC and Correspondence code terminals is not recommended for such installations, either, since these terminals do not provide all of the special symbols used by the BALLOTS system. Particularly lacking are the square brackets, which are used quite heavily in library work. For libraries that will be inputting data, the most useful terminal would be an ASCII terminal that contains all 96 graphics and runs at a speed of at least 300 baud.

Although Stanford can support a variety of terminal types, as can the TYMNET system, not all the types supported by Stanford are supported by TYMNET and vice versa. For instance, Stanford can accept by special arrangement a 1200-baud terminal connected into the PDP-11 minicomputer. But TYMNET cannot run at 1200 baud. TYMNET, on the other hand, can accept 15 cps ASCII terminals; Stanford, on the 370/168, cannot. Thus, if a user wants a 1200-baud ASCII terminal, he must run a telephone line to Stanford or call directly, and Stanford must set up a port to receive that terminal. At present, the use of 1200-baud terminals to communicate with BALLOTS is discouraged.

The user will require some type of modem to interface his terminal with the telephone line. If the user is running a terminal at 300 baud, something equivalent to a Bell 103 modem will be required. This type of modem can be acquired either from the Telephone Company or through a number of alternative vendors. It is recommended that the user acquire his modem through the Telephone Company to minimize repair difficulties, even though this results in a somewhat higher cost. An alternative to a modem would be the use of a telephone in conjunction with an acoustic coupler. Several brands of acoustic couplers are presently sold, and most appear to be equivalent. The user with a Trimline phone should acquire an acoustic coupler especially designed to handle that handset model. A normal handset should be paired with a coupler designed for it. There are couplers on the market that claim to handle both types of telephone, but these appear not to work satisfactorily in actual practice. In general, acoustic couplers are less reliable than hard-wired modems and are not recommended for long-term operations. For pilot projects and check-outs, however, they are quite useful.

The Stanford systems operate "half-duplex" only. That is, Stanford will not echo back the characters it receives from transmitting terminals. Thus, the terminal must be able to run in half-duplex mode, or the modem or coupler must be able to echo characters typed by the user back to his terminal. TYMNET can provide this echoing feature, but delays within the TYMNET system make this mode of operation unsatisfactory.

APPENDIX F

AN ANNOTATED LIST OF BALLOTS PUBLICATIONS

March 1976

The following publications are available from the Documentation Office, BALLOTS Center, Willow Trailer, Stanford University, Stanford, CA 94305. Prices given are payable by check or money order made out to the BALLOTS Center. This list is not a complete bibliography of all the documents ever published by the Center; only items currently available or in press are described here.

This list includes reports submitted to the Office of Education (OE) and to the National Endowment for the Humanities (NEH), which funded the development and implementation of the BALLOTS I and II systems between 1967 and 1974.

Documents with ED numbers are also available from ERIC Document Reproduction Service/Computer Microform Information Corporation (EDRS/CMIC), P.O. Box 190, Arlington, Virginia 22210.

A NOTE ON TERMINOLOGY

BALLOTS provides two kinds of services, a full service known as "full-face BALLOTS" and a more limited service known as "line-by-line BALLOTS". Full-face service allows a user at a video display computer terminal to review, edit, and transmit to the computer an entire 24-line screen of data in one transmission. All of the data on the screen is then edited and the results are transmitted to the user. This transmission occurs at high speed (120-480 characters per second) over dedicated transmission lines.

The line-by-line service communicates with the computer one line at a time (compared with the possible 24 lines at a time of full-face service). Line-by-line users may use a variety of terminals, both video display and typewriter, and either dial up the Stanford computer directly over regular telephone lines or communicate with Stanford through the commercial TYMSHARE communications network. The citations below sometimes distinguish between documents dealing with the line-by-line system and documents dealing with the full-face system.

ITEMS FOR WHICH THERE IS A PREPAID FIFTY-CENT HANDLING CHARGE ONLY:

ASSORTED DESCRIPTIVE PUBLICATIONS

Preprints of seven talks given at American Society for Information Science (ASIS) conference in October 1973. The titles listed below are all given with page references to their publication in Helen Waldron and F. Raymond Long, eds., ASIS: PROCEEDINGS OF THE AMERICAN SOCIETY FOR INFORMATION SCIENCE, Vol. 10, "Innovative Developments in Information Systems: Their Benefits and Costs." Westport, Connecticut: Greenwood Publishing Company, 1973. Distributed as a set for 50-cent charge.

Davison, Wayne. "Designing the BALLOTS User Interface." Pp. 43-44.

Epstein, A. H. "An Overview of Operational BALLOTS." Pp. 56-57.

Hartzell, Jennifer. "The Role of Documentation in the BALLOTS Project." Pp. 85-86.

Logan, Timothy. "The Development Cycle of BALLOTS System Requirements." Pp. 125-26.

Montague, Eleanor. "Project BALLOTS: Benefits and Costs." Pp. 159-60.

Roth, Norman M. "The File Software Behind BALLOTS." Pp. 201-202.

Stovel, Madeleine. "Batch Operations of the BALLOTS System at Stanford." Pp. 224-25.

Davison, Wayne. "Minicomputers and Library Automation: The Stanford Experience." (Paper read at the Eleventh Annual Clinic on Library Applications of Data Processing, on April 30, 1974, at the University of Illinois, Urbana-Champaign.) 12 pp. A description of the BALLOTS project's hardware environment, its experience in selecting a programmable video display terminal, and its requirements for the user interface with the BALLOTS system. Preprint available.

Epstein, A. H., Douglas Ferguson, and Eleanor Montague. "An On-Line Network--Cooperative Planning with Several Libraries." In Jeanne B. North, ed., ASIS: PROCEEDINGS OF THE AMERICAN SOCIETY FOR INFORMATION SCIENCE, Vol. 8, "Communication for Decision Makers." Westport, Connecticut: Greenwood Publishing Company, 1971. Pp. 227-31. A short paper describing a 13-week workshop held by several colleges and universities to determine the costs and benefits of network use of the BALLOTS system. Preprint available.

Project BALLOTS and the Stanford University Libraries. "Stanford University's BALLOTS System". JOURNAL OF LIBRARY AUTOMATION, Volume 8, No. 1, March 1975, pp. 31-50. An article describing the background and functional capabilities of the BALLOTS II system, in operation in the Stanford University Libraries since November 1972, and the hardware environment in which BALLOTS operates. Contains comments on use of the system from line managers in Stanford Libraries. Reprint available.

PROGRESS REPORTS

(These reports can be ordered from the BALLOTS Center for the prepaid 50-cent handling charge or from the other distributors named, for the charges indicated.)

Epstein, A. H., Douglas Ferguson, Eleanor Montague, John Schroeder, and Allen B. Veaner. FINAL REPORT, PROJECT NO. 7-1145, GRANT NO. OEG-1-7-071145-4428, BIBLIOGRAPHIC AUTOMATION OF LARGE LIBRARY OPERATIONS USING A TIME-SHARING SYSTEM: PHASE I. Stanford University Libraries, Stanford, California, April 1971. 297 pp. (Without appendices, 101 pp.) A report on system development from June 1967 through June 1970, which produced a prototype system called "BALLOTS I" and a general definition of requirements for a production system. <ERIC document number ED 049 786; microfiche $.65, hard copy $13.16. Also available from The LARC Association, P. O. Box 27235, Tempe, Arizona 85282, without appendices, as volume 4, issue 3 of THE LARC REPORTS.>

Epstein, A. H., Wayne Davison, Eleanor Montague, Madeleine Stovel, and Allen B. Veaner. FINAL REPORT, PROJECT NO. 7-1145, GRANT NO. OEG-0-70-2262, BIBLIOGRAPHIC AUTOMATION OF LARGE LIBRARY OPERATIONS USING A TIME-SHARING SYSTEM: PHASE II, PART 1. Stanford University Libraries, Stanford, California, February 1972. 207 pp. (Without appendices, 106 pp.) A report on system development from July 1970 through June 1971. Describes detailed analysis and design work on the BALLOTS II system and incorporates a number of studies and standards produced during this period. <ERIC document number ED 060 883; microfiche $.65, hard copy $9.87.>

FIRST ANNUAL REPORT OF THE BALLOTS PROJECT TO THE NATIONAL ENDOWMENT FOR THE HUMANITIES: SEPTEMBER 1, 1972 - AUGUST 31, 1973. BALLOTS Project, Stanford Center for Information Processing, Stanford University, Stanford, California, September 1973. 120 pp. A report on development and implementation of BALLOTS II capabilities from September 1972 through August 1973. <Development during the period from July 1971 to August 1972 was funded by Stanford University alone; no formal progress report on this period was produced.>

FINAL REPORT OF THE BALLOTS PROJECT TO THE NATIONAL ENDOWMENT FOR THE HUMANITIES: SEPTEMBER 1, 1973 - JANUARY 31, 1975. Library Computing Services (BALLOTS Project), Stanford Center for Information Processing, Stanford University, Stanford, California, October 1975. 76 pp. A report on completion of the BALLOTS II system between September 1973 and January 1975. Describes the system both from the user's and from the programmer's standpoint; also contains a section on "Impact of the Project" and one on "Plans for the Future".

SHORT DESCRIPTIONS, NEWSLETTER, REFERENCE PUBLICATIONS, RATE SHEET

BIBLIOGRAPHIC AUTOMATION OF LARGE LIBRARY OPERATIONS USING A TIME-SHARING SYSTEM. Three-panel flyer printed in summer 1975 by BALLOTS Center, Stanford University, Stanford, California. Describes capabilities of system in operation in Stanford University Libraries, new network uses of the system, and future expectations.

SAMPLES OF FORMS PRODUCED BY THE BALLOTS SYSTEM. Ten-page brochure printed in summer 1975 by BALLOTS Center, Stanford University, Stanford, California. Illustrates eight of the 23 kinds of filled-out forms produced through the BALLOTS system in use in the Stanford University Libraries.

BALLOTS NEWSLETTER. BALLOTS Center, Willow Trailer - SCIP, Stanford University, Stanford, CA 94305, Volume 1, No. 1, 4 pp., Vol. 2, No. 1, 4 pp. Published irregularly, to communicate new services and hints for using the BALLOTS system to current and prospective users, and to provide information about BALLOTS to those interested. <No handling charge required.>

BALLOTS (FULL-FACE SYSTEM) REFERENCE DIGEST. Stanford University Libraries, Stanford University, Stanford, California. Revised edition in press as of March 1976. Ca. 18 pp. A summary of information drawn from the BALLOTS SYSTEM REFERENCE MANUAL (see below) for the user's convenient reference when working at the computer terminal.

BALLOTS (LINE-BY-LINE SYSTEM) REFERENCE DIGEST. BALLOTS Center, Stanford University, Stanford, California. First edition in press as of March 1976. A summary of information drawn from the GUIDE TO BALLOTS NETWORK SERVICES (see below) for the user's convenient reference when working at the computer terminal.

BALLOTS DATA ELEMENT NOTATION - BDEN. Documentation Standard DS.124, rev. ed., July 1974. Twelve-page paper explaining the modified Backus-Naur form of notation used by the BALLOTS project for precise descriptions of the use and appearance of data elements in the BALLOTS system. (Much of the BALLOTS system books cited below is written in BDEN.)

THE BALLOTS NETWORK: SERVICE RATES. Fall 1975. A single sheet explaining BALLOTS services available outside of Stanford, methods of accessing them, and charges involved.

ITEMS FOR WHICH COSTS OF PRODUCTION ARE CHARGED:

ASSORTED DESCRIPTIVE PUBLICATIONS; STUDIES DONE

SYSTEM SCOPE FOR LIBRARY AUTOMATION AND GENERALIZED INFORMATION STORAGE AND RETRIEVAL AT STANFORD UNIVERSITY. SPIRES/BALLOTS Project, Stanford University, Stanford, California, 1970. 157 pp. A document written "to define the scope of a manual-automated system to serve the libraries and the teaching and research community of Stanford University". Defines the library operations to be supported by BALLOTS and the bibliographic information storage and retrieval capabilities to be provided in the SPIRES and BALLOTS systems. <ERIC document number ED 038 153. Also available from The LARC Association, P. O. Box 27235, Tempe, Arizona 85282, as volume 4, issue 4 of THE LARC REPORTS.>
BALLOTS price: $8.00

Heyeck, John, and Eleanor Montaque. EMPLOYEE INFORMATION BOOKLET: ACQUISITION DEPARTMENT COST STUDY PROCEDURES. 2nd. ed. Stanford University Libraries, Stanford, California, June 1972, 23 pp. A guide to Stanford Libraries staff in using a cost analysis and production statistics reporting system, put into effect in order to standardize statistical reporting, determine unit costs, and monitor production activity.
BALLOTS price: $1.50

Montague, Eleanor. SUMMARY OF A FEASIBILITY STUDY ON THE PARTICIPATION OF FOUR COLLEGES AND UNIVERSITIES IN A STANFORD UNIVERSITY LIBRARY AUTOMATION NETWORK. BALLOTS Project, Stanford University, Stanford, California, November 1971. 78 pp. Summary of a two-volume report produced by four colleges and universities in a 13-week workshop established to determine the costs and benefits of network use of the BALLOTS system.
BALLOTS price: $7.00

Weber, David C. WORKING PAPER ON THE FUTURE OF LIBRARY AUTOMATION AT STANFORD. Stanford University Libraries, Stanford, California, September 1971. 65 pp. A paper intended to facilitate the decision on whether and how to continue library automation at Stanford; written after four years of extensive developmental work on BALLOTS, during a period when no external funding of the project existed. <Available not from the BALLOTS Center but from the Business Services Department, Stanford University Libraries, Stanford University, Stanford, CA 94305, for $9.00.>

Publications in the "User's View of BALLOTS" series:

*Epstein, A. H., Wayne Davison, and Allen B. Veaner. A USER'S VIEW OF BALLOTS, NO. 1: THE MARC MODULE. 2nd. ed. BALLOTS Project, Stanford University, Stanford, California, March 1973. 31 pp. Not sold separately; text incorporated in No. 4.

*Logan, Timothy, Wayne Davison, and A. H. Epstein. A USER'S VIEW OF BALLOTS, NO. 2: THE IPF MODULE. BALLOTS Project, Stanford Center for Information Processing, Stanford University, Stanford, California, June 1973. 39 pp. Not sold separately: text incorporated in No. 4.

*Montague, Eleanor. A USER'S VIEW OF BALLOTS, NO. 3: THE CDF MODULE (a supplement). BALLOTS Project, Stanford Center for Information Processing, Stanford University, Stanford, California, June 1973. 8 pp. Not sold separately; text incorporated in No. 4.

Logan, Timothy, and Glee Cady. A USER'S VIEW OF BALLOTS, NO. 4: THE PO/OC MODULE. BALLOTS Project, Stanford Center for Information Processing, Stanford University, Stanford, California, December 1973. 57 pp. Sold only when bound together with Nos. 5, 6, and 7 (see citations following).
BALLOTS price: $3.00

*Logan, Timothy, and Madeleine Stovel. A USER'S VIEW OF BALLOTS, NO. 5 (A SUPPLEMENT TO NO. 4): THE ACC/NPO MODULES. Library Computing Services (BALLOTS Project), Stanford Center for Information Processing, Stanford University, Stanford, California, June 1974. 4 pp. Not sold separately; bound together and sold with Nos. 4, 6, and 7.

*Montague, Eleanor. A USER'S VIEW OF BALLOTS, NO. 6 (A SUPPLEMENT TO NOS. 4 AND 5): THE STANDING ORDER (SO) MODULE. Library Computing Services (BALLOTS Project), Stanford Center for Information Processing, Stanford University, Stanford, California July 1974. 5 pp. Not sold separately; bound together and sold with Nos. 4, 5, and 7.

*Cady, Glee Harrah. A USER'S VIEW OF BALLOTS, NO. 7 (A SUPPLEMENT TO NOS. 4, 5, AND 6): THE OUT-OF-PRINT (OP) MODULE. Library Computing Services (BALLOTS Project), Stanford Center for Information Processing, Stanford University, Stanford, California, September 1974. 2 pp. Not sold separately; bound together and sold with Nos. 4, 5, and 6.

*At present, the text in each starred User's View is only sold as part of or a supplement to the User's View No. 4. Please note that the description in the User's View Nos. 4-7 falls short of the total system implemented; i.e., three modules of the BALLOTS II system completed by January 1975 are not documented. <Plans for a final publication in this series, to be titled "A User's View of BALLOTS II", were canceled in fall 1975.>

SYSTEM BOOKS

BALLOTS II SYSTEM REQUIREMENTS: SYSTEM BOOK FOR BALLOTS II, Part I - On-line and Part II - Batch. Library Computing Services, Stanford Center for Information Processing, First Edition, July 21, 1975. Part I, 269 pp.; Part II, 337 pp.; 607 pp. in all. Contains the system specifications for the BALLOTS II system implemented in modules from 1972 to 1974, prepared by systems analysts and users for programmers. BALLOTS price: $25.00

NOTE: THE SYSTEM BOOKS PRODUCED FOR INDIVIDUAL BALLOTS II MODULES ARE NO LONGER AVAILABLE--THEIR CONTENTS ARE SUBSUMED IN THE DOCUMENT CITED ABOVE.

BALLOTS II SYSTEM REQUIREMENTS: AUTOMATED CIRCULATION SYSTEM STUDY. Library Computing Services, Stanford Center for Information Processing, First Edition, October 31, 1974. 101 pp. General study of requirements Stanford University Libraries would have for an automated circulation system, based on current manual procedures. BALLOTS price: $5.00

BALLOTS NETWORK SYSTEM BOOK: FULL-FACE (STANFORD UNIVERSITY LIBRARIES) AND LINE-BY-LINE (NETWORK) SYSTEM SPECIFICATIONS, Part I - On-line and Part II - Batch. BALLOTS Project (Library Computing Services), Stanford Center for Information Processing, First Edition, December 12, 1975. Produced as a set of 11- by 15-inch listings plus a notebook of samples of printed forms produced by the system. Contains the system specifications for the version of BALLOTS used in Stanford University Libraries, plus the system specifications for the version of the system used